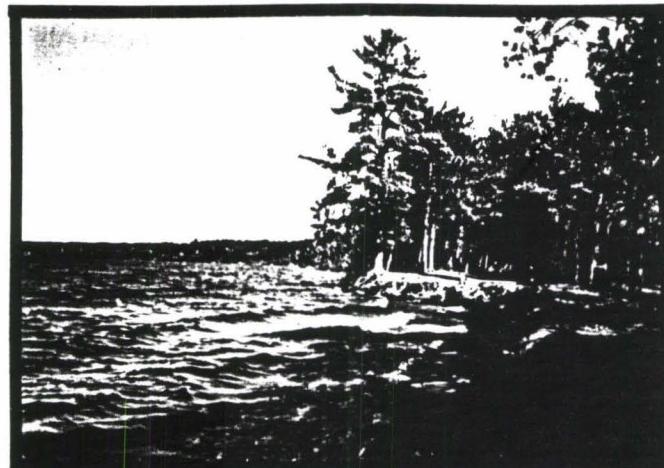


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THE  
CONCEPT PLAN  
FOR  
LITTLE BAY DE NOC  
RECREATION AREA



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This paper was prepared as a project in partial fulfillment of the requirements of the 1987 Professional Development for Outdoor Recreation Management Program at Clemson University, S.C. It in no way reflects USDA-Forest Service policy at this date, nor are the opinions expressed those of anyone other than the author.

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Title: The Concept Plan for Little Bay de Noc Recreation Area

Executive Summary:

There are many special places within the National Forests. Those special spots that people are attracted to year after year. These are the places where people concentrate to freely enjoy the natural beauty of the Nation's Forests. But like many special areas, as people concentrate, problems compound. Problems associated with conflicting uses and resource degradation.

The area for the proposed development of Little Bay de Noc Recreation Area in the Hiawatha National Forest in Michigan's Upper Peninsula, is likewise special. Enjoyment of this shoreline along Lake Michigan over the last 30 years, has compounded use problems and resource problems.

The Forest Service and the affected publics recognize these problems and realize the need to develop the area for resource protection and to provide a safe, healthy place for the continued enjoyment of Lake Michigan.

The Forest Service consulted with the affected publics throughout the planning process. Issues, concerns and opportunities (ICO's) were identified by the public as well as the Forest Service. There is a reluctance by some local users that the area will change once developed. Fees will be charged, camp units will be designated and length of stay limited. In general the public accepts these changes but has continually voiced the concern to keep the level of development low in order to provide a ~~rustic~~ camping opportunity along this section of lakeshore.

The preferred level of development for Little Bay de Noc Recreation Area is the lowest possible to protect this fragile environment yet provide for user health and safety.

The proposed recreation area includes a boat launch with a 15 car-trailer parking lot, eight picnic units and designated swimming area with a 20 car parking lot, and 33 single and two group camping units. Traditional use is accommodated by maximizing camping opportunities along the shoreline and keeping the development level low. Only the necessary accommodations of vault toilets, hand-pump wells, tables and fire rings or grills are provided. Asphalt is used for surfacing throughout the recreation area because the dark color visually blends the development with the forest setting. These accommodations will offer an essentially barrier free design though the development level is kept to a minimum.

Several alternatives were considered which proposed different levels of development and different ratios of group camping units to single camping units. These were compared and analyzed. The selection of the preferred alternative was based on the issues, concerns and opportunities in order to provide the greatest net public benefit.

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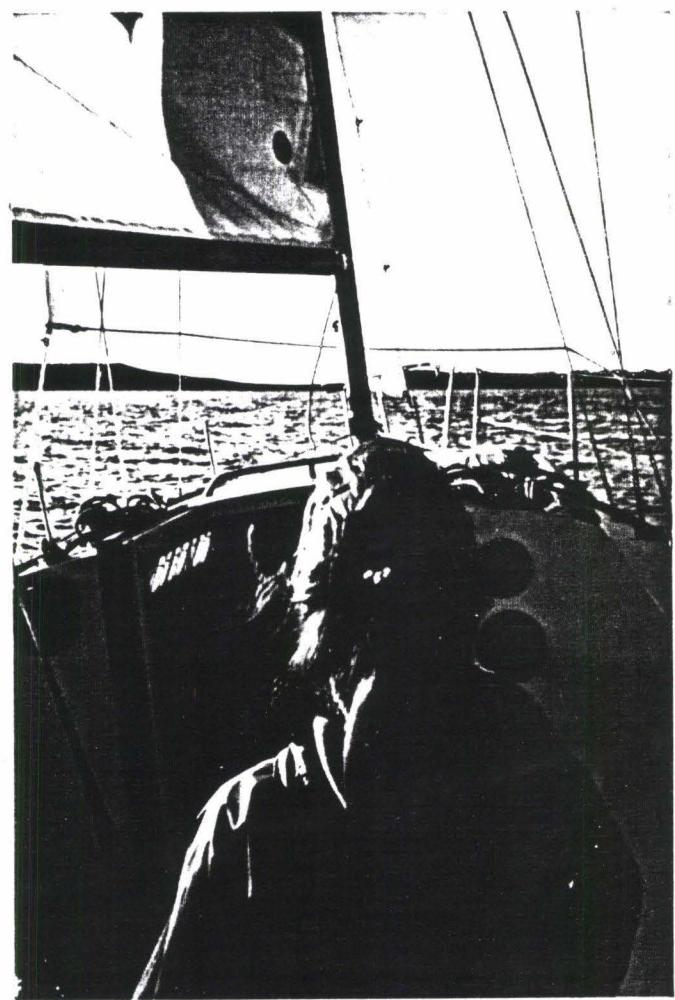
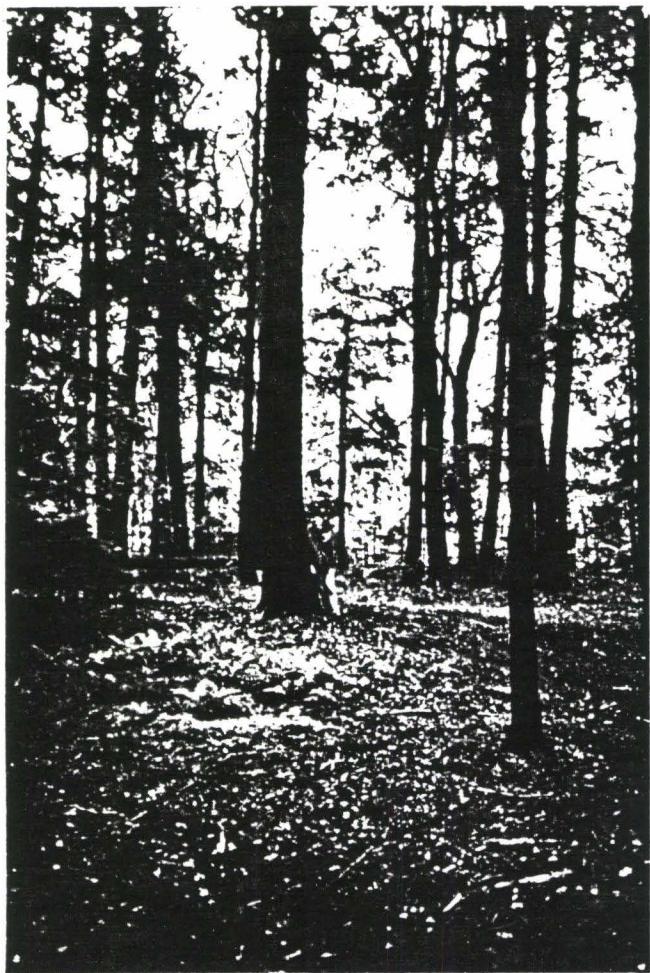
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Title: Little Bay de Noc Recreation Area

**Abstract:** The Hiawatha National Forest Land and Resource Management Plan schedules construction of a new recreation area: Little Bay de Noc. The site for this proposed Forest Service recreation area lies across the bay from Gladstone Michigan in Sections 23 and 26 of Township 41 North, Range 22 West. The area encompasses over a mile of sandy shoreline, gently sloping into Little Bay de Noc of Lake Michigan. It's a special place. The ancient beach terraces of large hemlock, white pine, and oak, as well as the existing sand beaches and intricate wetlands, have attracted people to this area for many years.

Local family groups have enjoyed this dispersed camping area for the last 30 years. The popularity of a "rustic" campsite on such a beautiful section of Lake Michigan's shoreline, with essentially few restrictions and no camping fees, has steadily increased the demands on this area. As use increased, associated problems also increased. Problems include conflicts between users, inadequate facilities creating health problems, as well as the need to protect this sensitive coastal zone. Development of the area is necessary to manage the pressure on this limited, sensitive resource yet provide a safe and healthy place to enjoy Lake Michigan.

This concept plan orchestrates public concerns, management concerns, and resource concerns in order to compose the concept design for the development of the area. This concept design of Little Bay de Noc keeps the lake the focal point while meeting the needs of the recreationists, the resources and the Forest Service. The concept design ensures the opportunity for continued enjoyment of this special place along Lake Michigan's shoreline in the Hiawatha National Forest.

**Purpose:** The purpose of this paper is to present the concept plan for the Little Bay de Noc Recreation Area. The concept plan presents the concept design or conceptual arrangement, and displays the process used to compose that design. This concept plan requires Regional Forester approval prior to finalizing the design for construction.

## ACKNOWLEDGEMENTS

There are a number of Forest Service people who have contributed to this paper both present and previous employees of the Hiawatha National Forest. I appreciate their efforts and consider this paper a culmination of those efforts.

There are several people who specifically deserve acknowledgements for their leadership, support and encouragement in making this paper possible.

I feel most fortunate to have been able to work with Joel Holtrop, the District Ranger at Rapid River. Joel is a manager who hears not only what people are saying but listens to understand why they are saying it. He's attuned to the people around him. He is a champion of integrated people management. Because of Joel's leadership, the design has been able to be responsive to the needs of the resources, the affected publics and the Forest Service.

I have also been fortunate to have had professional and personal support from two people; Jay Stephan, Public Affairs Specialist and Anne Okonek, Forester. Both these people have the ability to see the big picture while also analyzing the details. These people have integrated minds and therefore can cross functional stigmas for a broad encompassing perspective. I appreciate their being a sounding board for many of my ideas as well as reviewing this paper. I am grateful to the Forest Service for employing such minds.

I am also fortunate to have had the support of Carmen Dahn in typing this paper. I appreciate her skill and willingness to make the many revisions necessary for this papers presentation.

And finally, I thank my most honest critic and closest friend for all the encouragement to complete this project.

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Several options of spatial arrangement for this preferred alternative were then considered. These design options were composed to be responsive to three specific criteria: to design with nature, to separate conflicting uses and to maximize the number of camping units with views to the lake. Consequently facilities were placed only where they environmentally fit and were spread out along the shoreline, paralleling the lake, to take advantage of the views and separate conflicting uses.

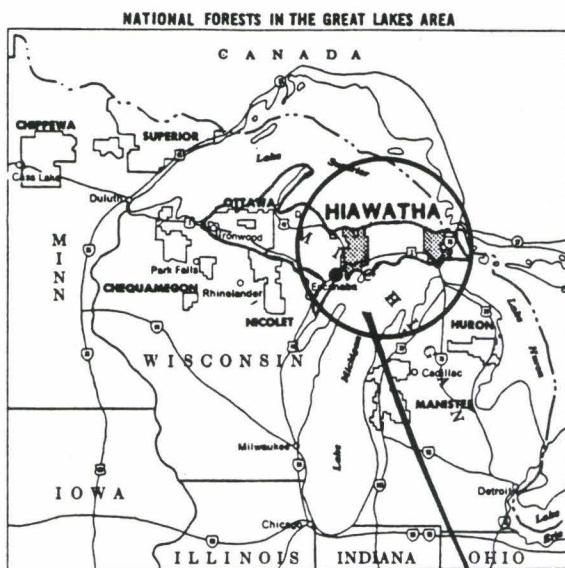
These concept design options reflect a thorough analysis of the site, the existing use and administrative needs. Sensitive areas, such as coastal wetlands, steep slopes and old growth hemlock trees are avoided in development yet are used to provide the needed spatial buffers to separate conflicting uses. The natural sand beaches and ancient lake terraces are then developed to take advantage of the lake views. The existing camping use is spread out along the the shoreline. Prime views of the lake are provided by keeping artificial impediments of roads, parking lots, toilets and wells behind the camping units. Camping units are placed adjacent to each other enabling each unit an exclusive view of the lake. As a result these concept design options are possibly more expensive investments than conventional designs. However, net benefits are substantial since design options respond to the issues, concerns and opportunities.

The concept design selected from these design options adequately separates conflicting uses, best maximizes camping opportunities with views of the lake while following natural patterns.

The Concept Plan for Little Bay de Noc Recreation Area, orchestrates the issues, concerns and opportunities to compose the concept design. The concept design was composed by linking each step of the process to these ICO's, from formulating the alternative levels of development, to the selection of the preferred, to the concept design options considered and finally the concept design. This approach of linking each step in the process to the ICO's ensures the design is special, uniquely responsive to the needs of the affected publics, the resources and the Forest Service. This approach necessitated ongoing consultations with the affected publics, resource specialists, managers and district staff to integrate the management of this special resource.

# HIAWATHA National Forest

## VICINITY MAP



### Legend



National Forest

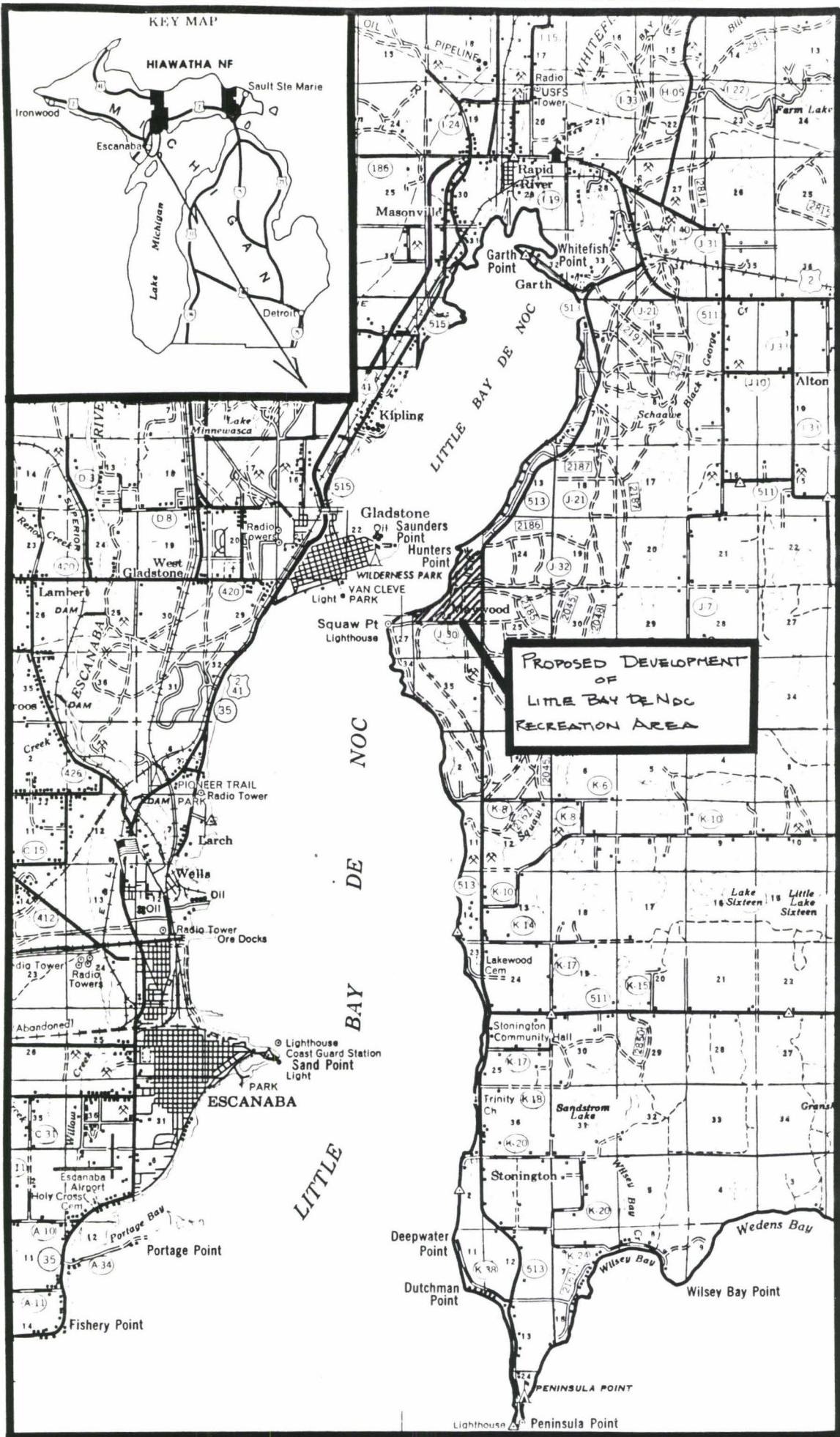


National Forest Headquarters



Figure v-1

LITTLE GAY DE HOC RECREATION AREA PROXIMITY MAP



## CHAPTER I

### THE CONCEPT DESIGN

This chapter presents the concept design or conceptual arrangement for the development of Little Bay de Noc Recreation Area.

Chapter I also displays how the concept design is responsive to the issues, concerns and opportunities, of the resources, of the affected public and of the Forest Service.

Something was needed to keep Maywood special. Maywood is the local name for the Forest Service's proposed Little Bay de Noc Recreation Area.

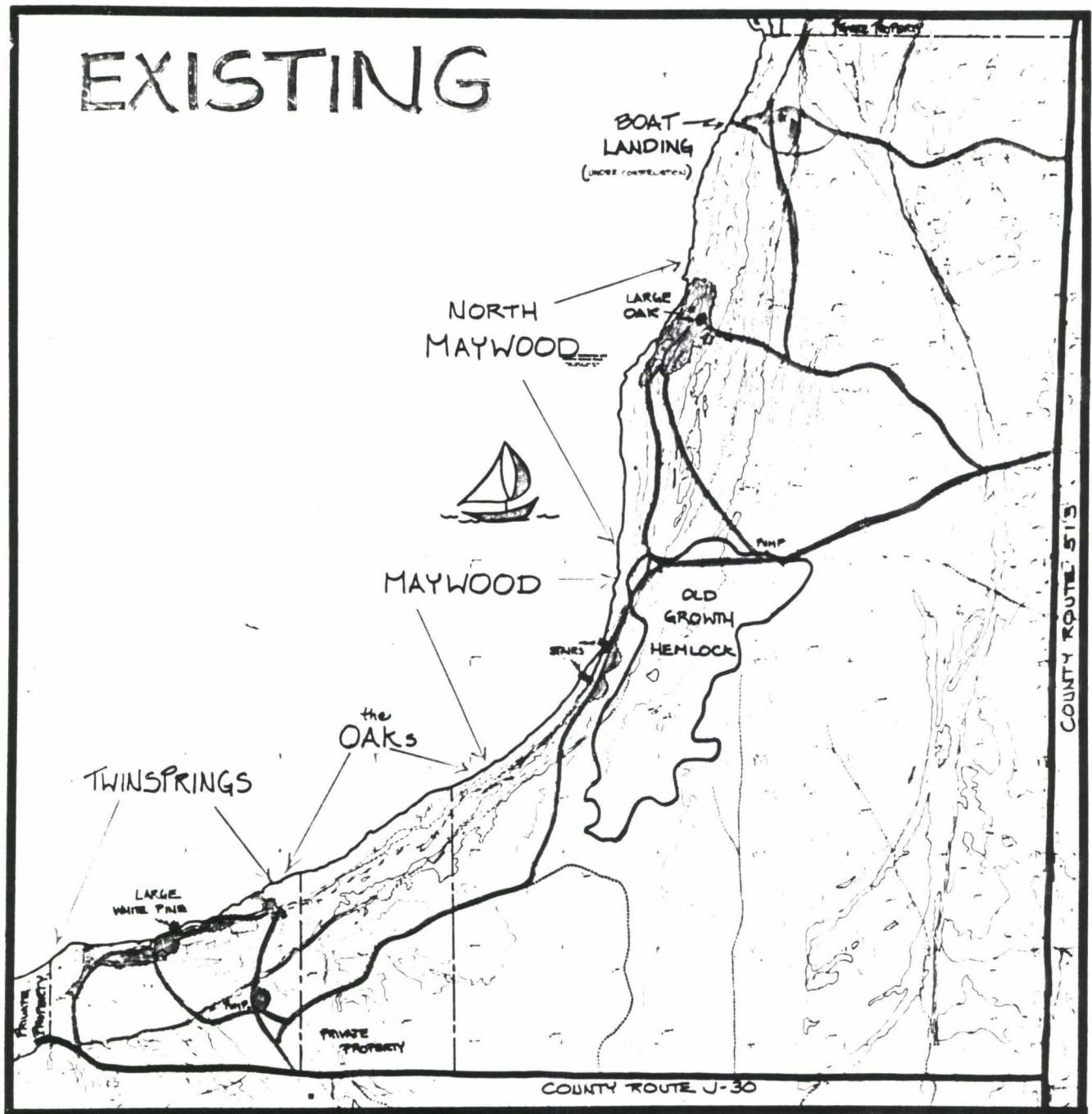
Keeping the area special has been the consensus for many years, but how to keep it special was more perplexing.

For over 60 years, this area has been used for recreation (Reference Appendix A: "A Little Background"). In the past 20 years, the area has been managed by the Forest Service and enjoyed by local family groups for dispersed recreation (See Existing Use, page 3).

The popularity of a "rustic" campsite on such a beautiful section of Lake Michigan's shoreline (See "A Glimpse", pages 4-7), with essentially few regulations and no camping fees, had steadily increased the demand for this area. And, as demand increased and more people crowded in to assume their right to enjoy this unregulated "commons"<sup>1</sup> of limited shoreline, the recreation experience deteriorated for everyone. More individual use could only be added at the expense of the whole. Group campers, wanting to monopolize the area for several weeks at a time, were in conflict with those campers wanting to spend the weekend. Health problems arose as people dispersed along the shoreline, farther from toilet facilities. Safety concerns increased as more swimmers and water skiers shared the

<sup>1</sup>Garrett Hardin, "The Tragedy of the Commons", Science, 1968.

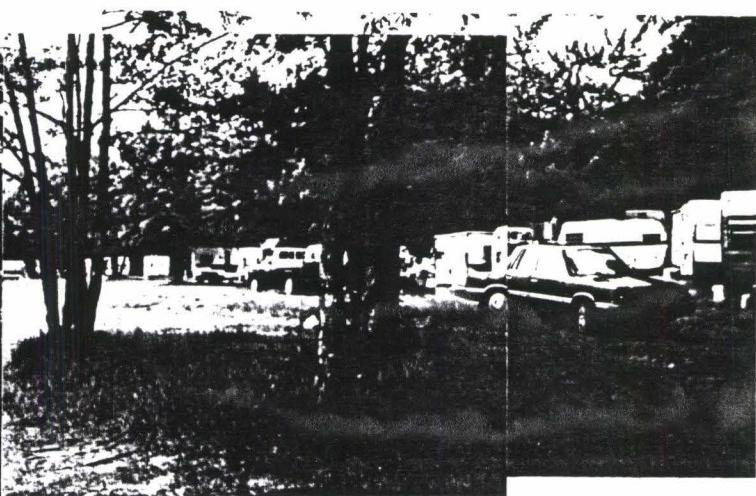
EXISTING USE



The existing recreation use is concentrated into primarily three areas as shown by the yellow areas along the shoreline. These areas are accessed by the low standard roads highlighted in yellow which lead from County Road 513 and County Road J-30. The private property shown in the "The Oaks" area has recently been acquired by the Forest Service. The boat landing is currently under construction as part of a cooperative effort with Michigan's Department of Natural Resources.

Figure I - 1

## A GLIMPSE...



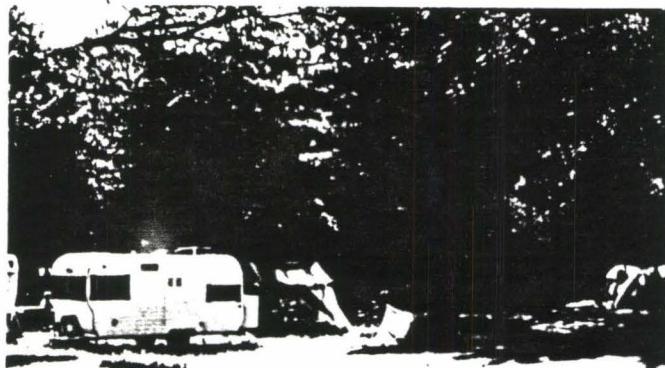
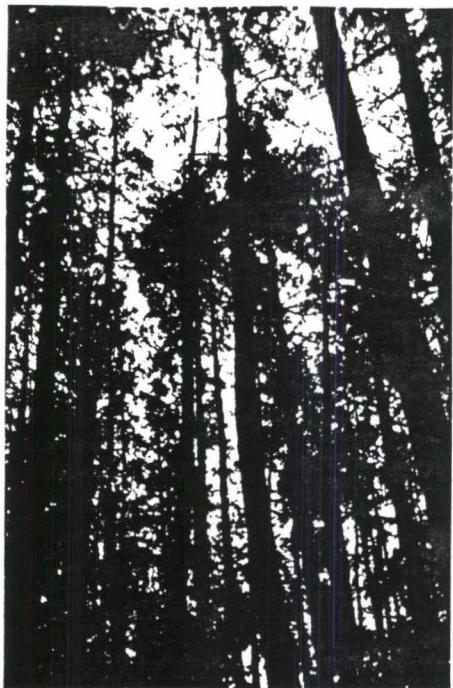
NORTH MAYWOOD



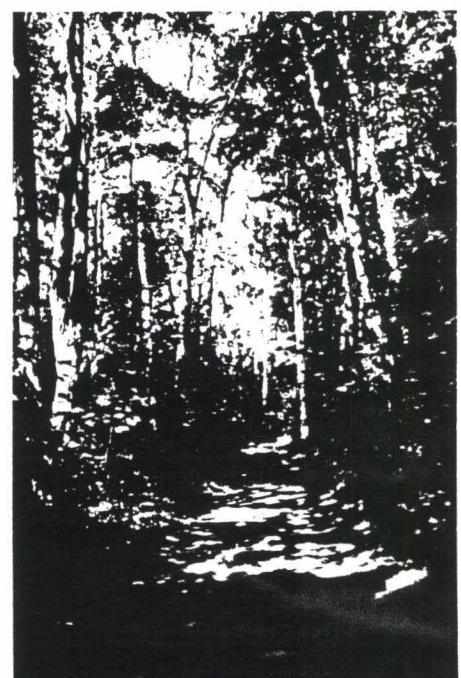
District Ranger Joel Holtrop

Figure I-2

## MAYWOOD



## THE OAKS



## TWIN SPRINGS

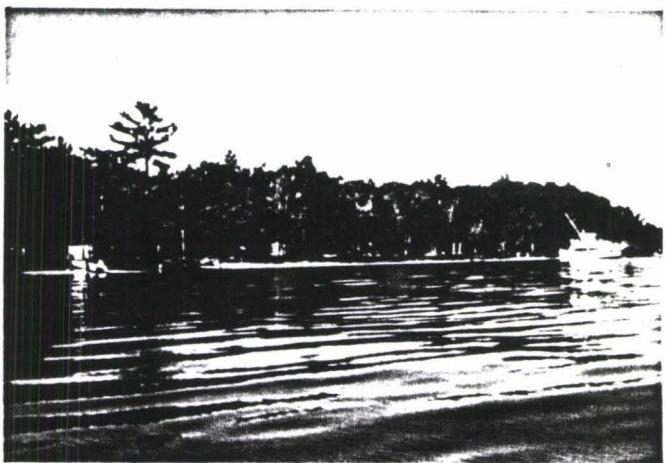
1987



1986



Note the fluctuation of the lake level.



same calm, protected waterfront. Safety concerns also mounted as more vehicles, including all-terrain vehicles, shared the same numerous travelways as pedestrians. Site degradation occurred since most of this existing use is concentrated into three compacted areas along the shoreline.

Several remedial actions by the Forest Service have taken place. Permits are required to camp. Name and address are recorded to more effectively monitor use of the area and to compute use figures. Use figures show a recent decline (Reference Appendix B: Existing Use Figures), conceivably a reflection of the growing dislike for the social problems associated with the dispersed camping arrangement. A swimming area has been delineated, providing a safe place to swim. Vehicles are now prohibited within 50' of the lake for pedestrian safety and also to allow this area to revegetate. Vehicle parking on these delicate soils had deteriorated the vegetation, increasing the shoreline's susceptibility to erosion. However, with the erosion rates previously predicted<sup>1</sup> and the now current high lake levels, the shoreline continues to be drastically altered.

With recent acquisition of a 22-acre parcel, the entire area is now federally owned and can be planned comprehensively. Once the area is developed, camping will be restricted to specific units. The picnic area and swim area will be designated for day use. Adequate numbers and locations of toilets and well water will be provided. All-terrain vehicles (ATV's) will not be allowed within the area but will be directed

<sup>1</sup> According to the MDNR 1984 study, over the last 40 years, erosion is occurring in the average of 2'/year along the Maywood tract (Sec. 23) and 1'/year along the Twin Springs tract (Sects. 1 and 26). The study uses this information to recommend setbacks for development to ensure at least a 30-year protection of investment.

to the proposed ATV trail system northeast of the area. Vehicular traffic will be restricted to the road system provided with one central access to direct and control traffic.

Developing the area will resolve many of the existing problems, but the unique concept design of the development will ensure that the area stays special. A design must be unique to be responsive to the issues, concerns and opportunities (ICOs) - unique in that it proposes a specific design solution to a specific area with specific ICOs.

The concept design for the Little Bay de Noc Recreation Area evolved over a 20-year period. It is an amalgamation of many people's thoughts, needs, and desires. Each step of the design can be traced back to these issues, concerns, and opportunities (ICO's). The ICOs then are the basis on which the entire design solution was developed. The ICOs guides the design throughout the entire process.

The concept design for the proposed Little Bay de Noc Recreation Area then is an innovative solution, uniquely responsive to the respective issues, concerns and opportunities (ICO's). The concept design is responsive to the ICO's of the resources, of the affected publics and of the Forest Service.

The concept design is responsive to the resources. The design follows natural patterns and allows nature to dictate the layout. Natural attributes and constraints are capitalized upon as opportunities to design with nature.<sup>1</sup>

<sup>1</sup> Ian L. McHarg, Design with Nature (The Falcon Press, Philadelphia, PA., 1969)

- Wetlands, the hemlock old growth, and archeological sites are too sensitive for development and are avoided. However, the design takes advantages of these areas to provide "natural buffers" between uses to enhance the natural patterns and increase the aesthetic appeal.
- The development is set back from the Lake (100-200') so the intricate shoreline is given ample space for nature to act/react and for humans to observe. Also, the shoreline does not become monopolized by any one group of campers. All are free to enjoy the natural beaches and to walk the entire shore along the Lake trail.<sup>1</sup> Views of the lakeshore remain natural appearing. Furthermore, a greater number of camp units can be provided by setting the units back as they parallel the curve of the shoreline.
- Most of the development is placed on the ancient lake terraces or benches, where the soils are suitable and the water table lower. Observer positions are then superior or above the lake, allowing a better view. In addition, vegetative diversity is greater with a mix of white pine, oak, paper birch, and hemlock.
- Road locations use existing road cuts to avoid making new cuts on slopes over 10% grade.
- Additional parking spaces are provided for boat-trailer storage behind the camping units on the other side of road. This will not only minimize unit "expansion" which damages the surrounding vegetation and soil, but will also provide visitor parking.

The concept design for this recreation area is also responsive to the needs of the local people who currently enjoy the area. This was considered important since recreation trends seem to indicate "...a change in vacation habits emphasizing numerous short vacations in lieu of one or two longer trips during the year. There is also a growing tendency to seek recreation opportunities closer to home which is altering travel patterns."<sup>1</sup>

<sup>1</sup>David W. Lime, "Locating and Designing Campgrounds to Provide a Full Range of Camping Opportunities" (USDA-FS General Technical Report NC9, 1974)

- In 1980 and 1982, public workshops were held to identify issues, concerns and opportunities (ICOs). The prevailing consensus indicated that development of the area could remedy many of the problems but the development should remain "rustic". The concern to keep the area "rustic" and not over-develop was a primary concern voiced not only during public workshops but continues to be expressed by the people who use the area. The level of development selected for this design, provides only essential utilities to meet this concern: vault toilets, wells, tables, and fire rings or grills.
- Providing this "rustic" camping opportunity was addressed not only in the level of development but also in the design layout to maintain the aesthetic appeal to the area. Opportunities to view the Lake from the camp units are maximized. The big attraction to the area is the inviting lakeshore with direct access and views of Lake Michigan. The design keeps the focus on the lakeshore while allowing nature to direct the design layout. Keeping these views undisturbed from artificial impediments offers a truly prime recreation opportunity. Neighboring campsites are placed only to the sides of the units and are well-screened by 50-75' of vegetation. This provides privacy as well as preventing other camp units from interrupting views of the Lake. Further, all of the utilities, roads, parking, toilets, and wells are kept behind the units. The opportunity created is one's "own" exclusive view of Lake Michigan.

<sup>1</sup>George H. Siehl, "Establishment of New National Park System Units: A Brief Review of Procedures, Criteria and Alternatives" (CRS Report for Congress, August 20, 1987), p.5.

Finally, the concept design is also responsive to Forest Service direction and management.

- Forest Service direction<sup>1,2</sup> is to design and build rustic-looking facilities as well as to provide facilities towards the primitive end of the Recreation Opportunity Spectrum. The design of Little Bay de Noc Recreation Area does this by keeping well within its Recreation Opportunity Spectrum classification of Roaded Natural.<sup>3,4</sup>
- Competition with the private sector is minimized by offering a "rustic" campground with fewer conveniences and utilities. This also provides the public a greater choice in meeting their recreational needs by offering facilities that complement and enhance the natural forest landscape.
- The concept design provides a safe and healthy place to recreate. Group camping units are well-separated from single camping units, minimizing any potential conflicts. The boat launch is separated from the day use area (swimming area and picnic area). Adequate separation is provided between day use and overnight use. Vehicular traffic is placed behind the camp units, providing pedestrians exclusive use of the entire shoreline in front of the camp units. One central access directs traffic flow and reduces the number of access roads.
- The concept design is essentially barrier-free for all users. All of the tables, grills, toilets and wells will accommodate people in wheelchairs. Accommodations will also include asphalt surfacing of: two single camping units, access to the nearest toilet(s) and well(s) and access from the day use parking area to the picnic area.

<sup>1</sup> USDA-Forest Service, 2300 Manual.

<sup>2</sup> USDA-Forest Service, The Hiawatha National Forest Plan Appendix Volume, (1986)

<sup>3</sup> USDA-Forest Service, ROS Users Guide.

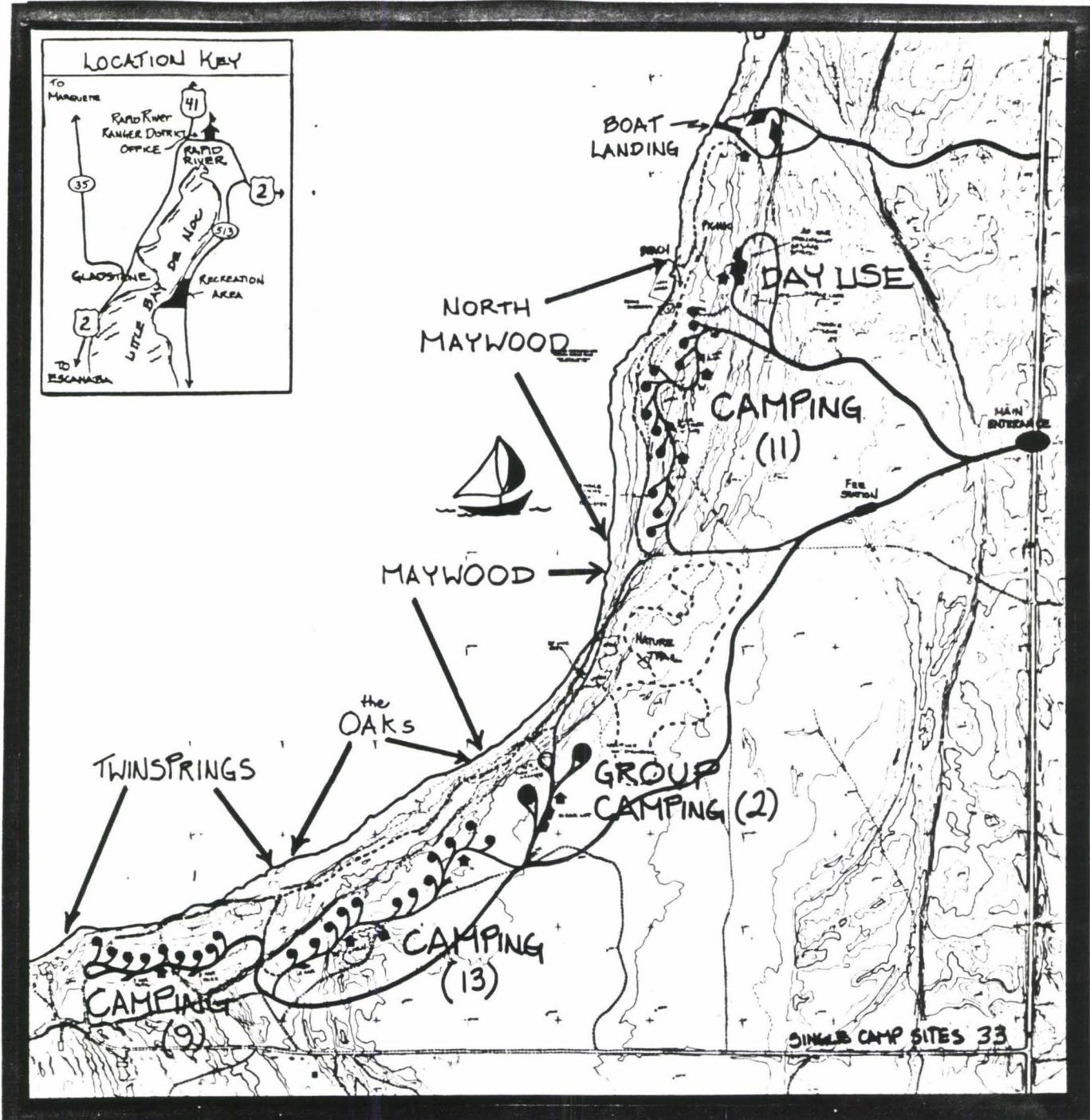
<sup>4</sup> USDA-Forest Service, ROS Users Guide Eastern Region Supplement, (1985).

- The concept design is cost-efficient. Although higher costs are incurred by spreading use parallel to the lakeshore since more roads and a greater number of toilets are needed, these costs are offset by a number of benefits. Views to the lake and a sense of privacy provide prime camping opportunities. The camping units will be desirable, in demand,<sup>1</sup> and generate assured returns for the life of the investment. The development also follows the natural patterns, minimizing the costs to mitigate resource impacts. But more importantly, it offers the public an opportunity to experience the harmony of designing with nature, thereby potentially instilling a closer relationship and better appreciation of the National Forest.

In conclusion, the concept design (See page 14) is a unique solution because it meets the needs of the public, the resources and therefore the Forest Service. The concept design of Little Bay de Noc Recreation Area will ensure the continued enjoyment of Lake Michigan at this special place in the Hiawatha National Forest.

<sup>1</sup> David W. Lime, "Locating and Designing Campgrounds to Provide a Full Range of Camping Opportunities" (USDA-FS General Technical Report N.C. 9, 1974).

Little Bay de Noc Recreation Area Concept Design



The concept design for the proposed Little Bay de Noc Recreation Area proposes:

- Boat launch with a 15 car/trailer parking lot.
- Day use with a 20 car parking lot, small picnic area, beach and designated swimming area.
- Designated camping with views of Lake Michigan for 33 single and 2 group camping units.
- Lake trail extending along the entire shoreline.
- Roads and parking lots surfaced with asphalt.
- Accommodations for people in wheelchairs including two surfaced camping units.

Figure I - 3

## CHAPTER II

### THE PROCESS

This chapter presents the sequential steps used to compose the concept design.

Chapter II also displays why the concept design is responsive to the issues, concerns and opportunities. This chapter then displays the logic behind the concept design.

## THE CONCEPT PLANNING PROCESS

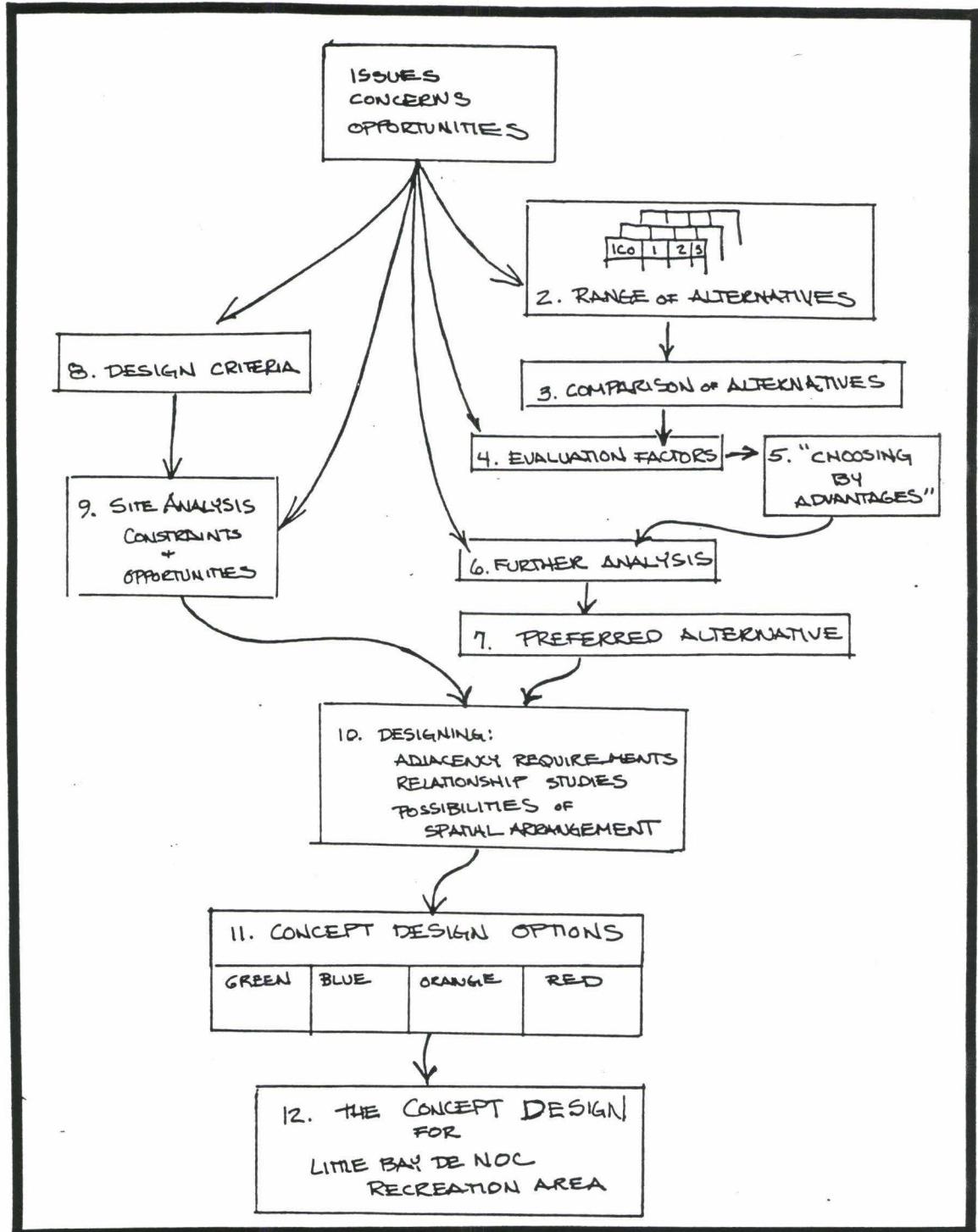


Figure II-1

Each step of the concept planning process is presented in this chapter from gathering the ICO's to the concept design. Although the steps are presented in sequential order, the process was iterative to constantly insure each step was responding to the ICO's.

1. All of the issues, concerns and opportunities (ICOs) over the last 20 years were gathered and grouped for analysis in the scoping process (Reference Appendix C; Issues, Concerns and Opportunities). Issues, concerns, and opportunities were identified and compiled from many sources; such as:

- Public workshops and meetings.
- Ensign Township Board meeting.
- District employees meetings.
- Visiting with the affected publics by the district staff and ranger.
- Hiawatha National Forest Land and Resource Management Plan.
- Forest Service managers, staff, and specialists.

All of the ICOs were initially given equal consideration during the scoping process. Some ICOs were deemed to be beyond the scope of this project or agreed upon as inconsistent with Forest Service facilities or management. These were noted and excluded from further consideration.

2. The ICO's were then addressed individually to develop the range of possible solutions. These solutions were grouped for consistency regarding the physical, social and managerial settings. Each group of solutions then evolved into an alternative. Themes were written to describe the alternatives. In order to compare the alternatives in

the next step, the alternatives were further defined as to the number of facilities and conveniences each would offer. However, these refinements had to remain consistent with the alternatives theme.

The alternatives<sup>1</sup> considered for the development of the Little Bay de Noc Recreation Area are:

Alternative 1: Develop only to protect the site and provide for user health and safety. Minimal changes to accommodate traditional use.

Alternative 2: Light development, accepting some changes by adding conveniences. Minimize displacement of traditional use. Protect the site and provide for user health and safety.

Alternative 3: Moderate development allowing changes to provide more conveniences. Protect the site and provide for user health and safety.

By formulating the alternatives directly from the ICOs, the alternatives relate back to the ICOs, offer consistent levels of development, and provide a reasonable range of consideration for the Little Bay de Noc Recreation Area.

3. The alternatives were compared based on estimates only and did not take into account site specifics of spatial arrangement and design opportunities. These comparisons were used to reflect relative differences among the alternatives. The alternatives were compared based on the following factors (A-J) and are summarized in the chart on page 23 (Reference Appendix D for calculation notes).

<sup>1</sup>Note: A higher level of development was considered but lacked support, did not meet the affected publics' concern to keep the development rustic, and was incompatible with the resource base.

A. Number of camp units

Noted are the number of group, single and hike-in units, and of those units which are hard surfaced to accommodate people in wheelchairs.

Alternative 1 estimates the existing ratio of group units to single units as 52% and 48%, respectively. Alternative 2 and 3 both have two versions of group unit to single unit ratios. (These ratios are the only variation within the alternatives). Both Alternatives 2 and 3 consider ratios of 28% group units to 72% single units, and 12% group units to 88% single units.

B. Camping Capacity; People At One Time (PAOT)<sup>1</sup>

Alternative 2 and 3 have six more PAOTS in camping capacity than Alternative 1 because of the additional hike-in units.

C. Development Level

The facilities and conveniences offered are dependent on the ICO's.

Subsequent levels of development had to remain consistent within the alternative.

Alternative 1 offers the least amount of development by providing only essential facilities. Alternatives 2 and 3 progressively increase the level of development as more conveniences are added.

D. Number of Recreation Visitor Days (RVD's)

The RVD's vary depending on the assumed pattern of use of weekday to weekend ratios. It was assumed that as the development level and the

<sup>1</sup>USDA-Forest Service, Recreation Information Management Handbook FSH-7309.11

number of single units increased, weekday use would begin to equal weekend use. Consequently, Alternative 3's use pattern for camping and day use is 1:2, generating 31,971 RVD's, while Alternative 1's use pattern is 1:3, generating 22, 959 RVD's. The use pattern for Alternative 2 is 1:25, generating 26,064 RVD's.

E. "Willingness to Pay" Benefits

Benefits increased by \$27,000 from Alternative 1 to Alternative 2 and by \$15,000 from Alternative 2 to Alternative 3 due to the difference in RVD's projected.

F. Benefits generated from projected annual fees

Total fees generated are similar among the alternatives because the occupancy rate is kept constant at 50%. This is based on the assumption that, even though RVD's increase as the level of development increased (item D), this increase in use is not reflected in more fees paid. Rather user tolerance and/or preference for crowding increases as development level increases.<sup>1</sup> Thus, more people crowd onto the same number of occupied or paid units, increasing the RVD's, but not the fees generated.<sup>2</sup> A 50% occupancy rate was based on comparable Hiawatha National Forest campgrounds. This rate is considered conservative since there is, at present, an established use of the area, the area is in close proximity to Gladstone and Escanaba populations and the area offers a prime location on Little Bay de Noc of Lake Michigan.

<sup>1</sup>USDA-Forest Service, "Recreation Opportunity Spectrum User Guide".

<sup>2</sup>Reference Appendix D Item F for additional notes.

G. Cost of construction and annual costs

Costs range from \$380,000 in alternative 1 to \$634,000 in Alternative 3. The \$254,000 difference is due to the increase in the number of units and level of development offered. Asphalt surfacing further adds to the cost of construction but significantly reduces the road maintenance costs. Overall maintenance costs increase from Alternative 1 to Alternative 3, due to the greater number of camping units and their associated toilets and wells, and conveniences at the day use area.

H. Pay Back Index<sup>1</sup>

The Pay Back Index (PBI) displays the return on the investment. The PBI x the design life of 29 years = the number of years it will take to pay back the investment for the alternative.

The pay back time ranges from 50 years in Alternative 1 to 60 years in alternative 3. An analysis was done to determine if either costs or benefits could be changed to "pay back" the investment over the design life of 29 years. Fees would need to be doubled to \$12 in Alternative 1 and raised to \$15.00 in Alternative 3. Consequently, the investment pay back would not likely be realized since similar opportunities are provided less expensively elsewhere and consequently, occupancy would fall below 50%.

<sup>1</sup>USDA-Forest Service, Region 9 Guidelines for Publicly Managed Recreation Opportunities (1986).

Cost reductions were also examined specifically for Alternative 1 which is the least costly and therefore had the greatest likelihood to pay back the investment in 29 years. However, these are basic costs needed to provide for user health and safety and protect the site.

If these basic costs were reduced the ICO's could not be met. Consequently even at the basic cost level represented in Alternative 1, the pay back time is still 50 years.

#### I&J Present Net Worth (PNW)

PNW is calculated for both "fee generated" benefits and "willingness to pay" benefits using a 4% discount rate for 30 years.

When comparing benefits generated from fees, Alternative 1 is higher than Alternative 3. However when looking at "willingness to pay" benefits, Alternative 3 is higher than Alternative 1. This reversal indicates that Alternative 1 offers a greater cash flow while Alternative 3 provides more "non-priced" benefits. This is reflected in both benefit/cost ratios where Alternative 1 returns a higher amount for each dollar expended. So, though Alternative 3 realizes more benefits, they are at a higher price per benefit. Alternative 1, realizes fewer benefits but at a better buy.

These indices seem to indicate that the added costs for additional conveniences are not realized in greater benefit/cost ratios.

COMPARISON\* OF ALTERNATIVES

\* Comparisons are based on estimates only. Actual numbers of units and costs/benefits will be determined for the design to reflect site specifics of spatial arrangement and design opportunities.

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| COMPARISON FACTORS  |  | ALTERNATIVE 1  | ALTERNATIVE 2  | ALTERNATIVE 3   |
|---|--|--|--|---|
| Alternative Description   |  | Develop only to protect the site & provide for user health & safety. Minimal changes to accommodate traditional use. | Light Development, accepting some changes by adding conveniences. Minimize displacement of traditional use. Protect the site & provide for user health & safety. | Moderate Development, allowing changes to provide more conveniences. Protect the site & provide for user health and safety.                                 |
| A Camp Units  |  | 17 single<br>6 group   | 3 hike-in<br>26 single<br>(6 b )<br>3 group  | 3 hike-in<br>32 single<br>(8 b )<br>1 group   |
| B Total Camping PAOTS   | Total Units  | 23 units<br>175 PAOTS  | 32 units<br>181 PAOTS  | 36 units<br>181 PAOTS   |
| C Development Description   |  |  |  |   |
| Parking & Access Surfacing  | Main Access, "loop" roads, day use parking and adj. parking by camp units.                 | Gravel   | Asphalt  | Asphalt   |
| Group & Single Camping Surfacing  | Spur/Unit<br>Spur/Unit<br>Access & Trail   | Light gravel/Native<br>N/A<br>N/A  | (Except: hike-in parking boat access and parking)<br>Sand Gravel<br>Trail: Gravel  | (Except:<br>boat access and parking)<br>Asphalt Sand<br>Asphalt<br>Trail: Asphalt   |
| Additional Surfacing  | Hike-in Units<br>Lake Trail &<br>Interp. Trail   | N/A<br>Native  | Native   | Sand  |
|   | Lantern Post<br>Toilets<br>Wells<br>Stairs   | N/A<br>4<br>2<br>6 sets of Stairs  | Initial Layer of wood chips<br>Lantern Post<br>4 5<br>4<br>8 sets of Stairs  | Maintain with wood chips<br>Lantern Post<br>5 6<br>5<br>10 sets of Stairs   |
| Camping Facilities  | Change house and toilet<br>Shelter<br>Play Gr. Equip.<br>Horseshoe Pits<br>Open Play Surf. | Toilet<br>N/A<br>N/A<br>Native<br>N/A  | Toilet<br>Rustic Shelter<br>N/A<br>N/A<br>Native<br>Asphalt Trail to Toilet  | Change House & Toilet<br>Shelter<br>Play Group Equipment<br>Horseshoe Pits<br>Sod/Turf<br>Asphalt Trail to Change House & Toilet. Also asphalt 2 pic. sites |
| Day Use Facilities  | Benches  | N/A  | N/A  | 6 Benches   |
| D Total RVD's per Year  | 22,959 RVD's   | 28,743 RVD's   | 31,971 RVD's   |   |
|   | Camping<br>Day Use<br>Fishing  | 21,000 (1:3 use pattern)<br>720 (1:3 use pattern)<br>1,239 (1:3 use pattern)   | 26,064 (1:25 use pattern)<br>1,440 (1:25 use pattern)<br>1,239 (1:3 use pattern)   | 28,236 (1:2 use pattern)<br>2,496 (1:2 use pattern)<br>1,239 (1:3 use pattern)  |
| E "Willingness to Pay" Per Year   | \$167,801  | \$195,159  | \$210,427  |   |
| F Total Fees (120 Day Season 50% Occupancy)   | \$ 12,600  | \$ 13,680  | \$ 13,680  |   |
| G Costs: Construction   | \$384,367  | \$533,070 \$548,541  | \$612,370 \$633,909  |   |
|   | Total O&M  | 15,400<br>20,850<br>21,000   | 21,100<br>21,300   |   |
| H P.B.I. - Cost/RVD Index used to pay back investment                                     | Pay Back Index<br>1.72   | 1.88<br>1.93   | 2.00<br>2.06   |   |
|   | Cost/RVD<br>Return (fees)  | 1.45<br>.84  | 1.43<br>.76<br>1.47  | 1.44<br>.72<br>1.49   |
| I PMW<br>B/C<br>Where B = Fees generated and C = Fee & Nonfee Costs                       | \$ -470M<br>.30  | \$ -677M<br>.25<br>\$ -697M<br>.24   | \$ -760M<br>.23<br>\$ -773M<br>.23   |   |
| J PNV<br>B/C<br>Where B = "Willingness to Pay" for all RVD's and C = Fee and Nonfee Costs | \$ +206M<br>4.05   | \$ +2287M<br>3.54<br>\$ +2267M<br>3.46   | \$ +2453M<br>3.49<br>\$ +2426M<br>3.40   |   |

Figure II-2

4. After reviewing the Comparison of Alternatives, as well as the ICOs, evaluation factors (Reference Appendix E: Selection of Evaluation Factors) were selected to display the most significant differences among the alternatives. These selected factors were then used to evaluate the alternatives through a methodology referred to as "Choosing by Advantages".

The following are the evaluation factors and assigned relative weights used for the "Choosing by Advantages" evaluation method:

- Minimize the disruption of traditional use. The higher the development level, the greater the potential to disrupt traditional use (100 weight).
- Provide for an economically-efficient facility. This was based on Public Net Worth derived from both a "willingness to pay" (90 weight) and estimated fees generated. (80 weight).
- Maximize acceptance of non-local publics. Non-local publics have been assumed to favor single camp units over group camp units (75 weight).
- Accommodate single camping unit use (70 weight).
- Minimize competition with private enterprise. The higher the development level, the greater the potential to be in competition with private enterprise (60 weight).
- Minimize costs (50 weight).
- Market the area. The more facilities that are provided, the greater the potential to attract more use. (50 weight).
- Accommodate group camping use (40 weight).
- Maximize acceptance of local publics who currently do not use the area. These people seem to favor less development to limit the number of "tourists" (10 weight).

5. "Choosing by Advantages" is a methodology which compares the advantages of alternatives. Each evaluation factor is assigned relative advantages for each alternative. These evaluation factors are then weighted relative to each other (1-100). By multiplying this relative weight with the relative advantage, an importance value is computed. These importance values are totaled. The higher the value; the greater the alternative's overall advantage.

Alternative 1 received the highest total (See Choosing by Advantages, page 26) since it provides the greatest overall advantage based on the selected evaluation factors. Specifically, Alternative 1 minimizes displacement of existing users who prefer a more rustic, less developed facility. This lower level of development minimizes competition with private facilities since it provides fewer conveniences. When comparing costs, Alternative 1 has the advantage being the least expensive because fewer facilities and conveniences are provided. In addition, Alternative 1 maintains a higher total advantage, even though group camping use is weighted less favorable than single camping use.

Alternatives 2 and Alternative 3, for the most part, invest additional dollars, to add more conveniences to the facility. Existing users would presumably be displaced since they traditionally have preferred a lower level of development. These additional conveniences also begin to compete with private facilities and begin to cater to a different group of people who prefer a higher level of development.

## CHOOSING BY ADVANTAGES

## LITTLE BAY DE NOC RECREATION AREA ALTERNATIVES

| C.B.A. Evaluation Factors   |                 | Wt. | Alternative 1 | Alternative 2  |                | Alternative 3  |                |
|---|-----------------|-----|---------------|----------------|----------------|----------------|----------------|
|   |                 |     |               | A<br>(3 group) | B<br>(1 group) | A<br>(3 group) | B<br>(1 group) |
| Minimize Competition  | Advantage       | 60  | Best          |                | Intermediate   |                | Least          |
| Big Difference is<br>between 1 & 2, not<br>between 2 & 3                          | rate (relative) |     | +5            | +1             | 0              | 0              | 0              |
|   | importance      |     | 1             | .2             | 0              | 0              | 0              |
|   |                 | 60  | 6 sites       | 12             | 12             | 0              | 0              |
| Accommodate Group Use   | Advantage       | 40  | +5            | +2             | 0              | +2             | 0              |
|   | rate (relative) |     | 1             | .4             | 0              | .4             | 0              |
|   | importance      |     | 40            | 16             | 0              | 16             | 0              |
| Accommodate Single Use  | Advantage       | 70  | 17            | 26             | 32             | 26             | 32             |
|   | rate (relative) |     | 0             | +9             | +15            | +9             | +15            |
|   | importance      |     | 0             | .6             | 1              | .6             | 1              |
|   |                 |     | 0             | 42             | 70             | 42             | 70             |
| Cost  | Advantage       | 50  | \$400M        | \$554M         | \$570M         | \$633M         | \$655M         |
|   | rate (relative) |     | +25M          | +101M          | +85M           | +\$22M         | 0              |
|   | importance      |     | 1             | .4             | .34            | .1             | 0              |
|   |                 |     | 50            | 20             | 17             | 5              | 0              |
| Economic Efficiency   | Advantage       | 80  | \$-470M       | \$-677M        | \$-697M        | \$-760M        | \$-773M        |
| Based on PNW;   | rate (relative) |     | +303          | +96            | +76            | +13            | 0              |
| Est. Fees   | importance      |     | 1             | .3             | .25            | .04            | 0              |
|   |                 |     | 80            | 26             | 20             | 3              | 0              |
| Economic Efficiency   | Advantage       | 90  | 2064          | 2287           | 2267           | 2453           | 2426           |
| Based on PNW;   | rate (relative) |     | 0             | +223           | +203           | +389           | +362           |
| "Willingness to Pay"  | importance      |     | 0             | .6             | .52            | 1              | .9             |
|   |                 |     | 0             | 54             | 47             | 90             | 81             |
| Minimum Disruption of<br>Trad. Use  | Advantage       | 100 | Best          | 2 extra gr.    | Worse          | 2 extra gr.    | Worse          |
| The Higher the Dev.<br>Level, The Worse the<br>Disruption                         | rate (relative) |     | +10           | +7             | +5             | +2             | 0              |
|   | importance      |     | 1             | .7             | .5             | .2             | 0              |
|   |                 |     | 100           | 70             | 50             | 20             | 0              |
| Public Acceptance   | Advantage       | 10  | Best          |                | In-between     |                | Worse          |
| Local Non-User<br>More to the Neg.<br>Aspect - Don't Want<br>More People/Tourists | rate (relative) |     | +1            | .2             |                | 0              | 0              |
|   | importance      |     | 1             | .2             |                | 0              | 0              |
|   |                 |     | 10            | 2              | 2              | 0              | 0              |
| Non-Local Public<br>Non-Local Would Favor   | Advantage       | 75  | Worse         |                | In-between     |                | Best           |
| Single Sites Over<br>Group Sites  | rate (relative) |     | 0             | +5             | +7             | +8             | +10            |
|   | importance      |     | 0             | .5             | .7             | .8             | 1.             |
|   |                 |     | 0             | 38             | 53             | 60             | 75             |
| More Marketing/Fees<br>Generated  | Advantage       | 50  | Worse         | Not as Good    | Good           | Better         | Best           |
|   | rate (relative) |     | 0             | +5             | +7             | +8             | 10             |
|   | importance      |     | 0             | .5             | .7             | .8             | 1              |
|   |                 |     | 0             | 25             | 35             | 40             | 50             |
| TOTALS  |                 |     | 340           | 305            | 306            | 276            | 276            |

Figure II-3

6. The "Choosing by Advantages" methodology was used as a tool to stimulate and guide the analysis of the alternatives. Alternative 1 received the highest total. However, through this group analysis and discussion, several ICOs were deemed to need further consideration. Based on this analysis, Alternative 1 was modified to become the Preferred Alternative in four ways:

- The ratio of group to single camping units changes from 6 group/17 single camping units to 2 group/29 single camping units.

Alternative 1, provides 51% of its total camping capacity for group campers and 49% for single campers. This capacity was discussed at great length and seemed inappropriate for several reasons. Once the area was developed, even at this lower level of development, fees would be charged. The group camping fees would be three times the amount charged for single units. Some traditional group users are expected to use the facility because of the lower level of development proposed. However, charging fees will also displace some existing group users and limit the length of stay for most of the remaining group users, presumably, to long weekends.

Replacement of group use is not assured, although some additional use is expected from church groups, Scouts, and possibly some "new" local family groups. Replacement of single campers is presumed more predictable, with fewer members needing to coordinate schedules for recreation time and a higher likelihood of lengthening their stay. Therefore, single camping units would be in greater demand than group camping units, even at this lower level of development. Also, groups could utilize adjacent single units.

Consequently, fewer group units are offered to provide more single camping units. The number of group units needed was estimated at two or three units. An analysis of the site indicated there was limited shoreline suitable for development. Because group units require more lineal footage along this limited shoreline and single units were considered more feasible, only two group units would be provided. Adding more group units was considered undesirable at this time for two reasons. First, the units would have to be placed too far away from the lakeshore and, second, because the lakeshore frontage would already be maximized in locating the facilities for the Preferred Alternative.

- The existing road system will not constrain the design solution of the Preferred.

The Preferred Alternative's design solution will not be constrained by using primarily existing roads as Proposed in Alternative 1. The existing road system parallels much of the shoreline, thereby severely limiting potential facility development especially for camping. Also, the existing safety hazard of mixing shoreline users with vehicular traffic is not resolved. By limiting the design solution to primarily existing roads, it was feared that the road system would begin to dictate the design. Rather, the facilities of the area should dictate the road system.

- Asphalt is preferred for surfacing roads and parking.

Asphalt will be used for surfacing spurs, roads and parking areas rather than gravel. Asphalt blends better with the surrounding vegetation and reduces noise, dust, and maintenance. A smoother surface is also provided

for wheelchairs as well as for bare feet. These aspects outweigh the possible connotations of a higher level of development. Curvilinear alignment of the road will help provide the desired appearance of a lower level development.

- Wheelchair use will be accommodated in the Preferred.

Alternative 1, did not provide any surfaced camp units or access to accommodate wheelchair use. The Preferred provides two surfaced single camp units with access to adjacent toilet and well, all designed to accommodate people in wheelchairs. Parking at the day use area will be delineated or signed. Access from the parking area will also be surfaced to the toilet and well. All toilets, wells, and tables will allow for wheelchair use in the Preferred Alternative. Remaining camp units will be surfaced with a compacted sand/clay, possibly providing a smooth enough surface for wheelchairs. (However, the lake and nature trail will remain native and receive no surfacing.)

7. In conclusion, the Preferred Alternative offers a low level of development, minimizes displacement of existing use, provides for users health and safety and protects the site. The PAOTs equal 175. The facility provides 27,879 RVD's assuming a 1:25 use pattern. Annual fees collected would equal \$12,600 assuming a 120 day use season and 50% occupancy rate. Comparing these factors with the proposed Alternative 1. RVD's change the most significantly. RVD's increase by almost 5,000, an 18% increase due to the 1:25 use pattern ratio compared with Alternative 1's ratio of 1:3. Construction costs are estimated at \$514,000 and annual operation and maintenance costs at \$18,900. Construction costs are 25% higher and annual costs are 18% higher than Alternative 1 because of the initial higher cost

of surfacing with asphalt and the greater number of individual camping units provided respectively. Priced benefits total to \$190,000 almost as much as Alternative 2 with \$195,000. Facilities and asphalt surfacing which accomodate people in wheelchairs provide an essentially barrier-free access. The Pay Back Index of 1.93 (1.43 cost/RVD divided by .74 return/RVD) would require 56 years to pay back the investment, six more years than Alternative 1.

These estimates did not take into consideration design opportunities nor spatial arrangement. Actual numbers of units and cost/benefits will be determined for the design solution as part of the preliminary design stage. The difference of construction costs in comparing the alternative with actual construction costs will not change the relative rankings of the alternative.

8. Design criteria dictate the spatial arrangement of the development's facilities. Because of the extreme importance of these criteria, they must be related to the ICOs. The design criteria are the conductors which orchestrated the harmony of the design. The design criteria were developed based on those ICO's deemed the most critical to the success of the concept design. Consequently, the design criteria reveal how the concept design was guided to be responsive to the ICOs.

The concept design was based on the following three design criteria and subsequent guidelines:

To design with nature by:

- Minimizing the environmental impacts and disturbances to this sensitive coastal area.
- Taking advantage of natural features to provide buffers between uses.
- Optimizing the potential enjoyment of the area's natural attractions; primarily the lake and views of the lake.

To separate conflicting uses by:

- Providing at least 500' between the designated swim area and the boat access.
- Providing at least 250' between the single camping units and the day use area as well as between the group camping units and the single camping units.
- Locating all roads behind the facilities and then locating all facilities back from the shore, to provide all pedestrians sole users of the shoreline.
- Restricting ATV use from within the entire development.

To maximize the number of "rustic" camp units with views of the lake by:

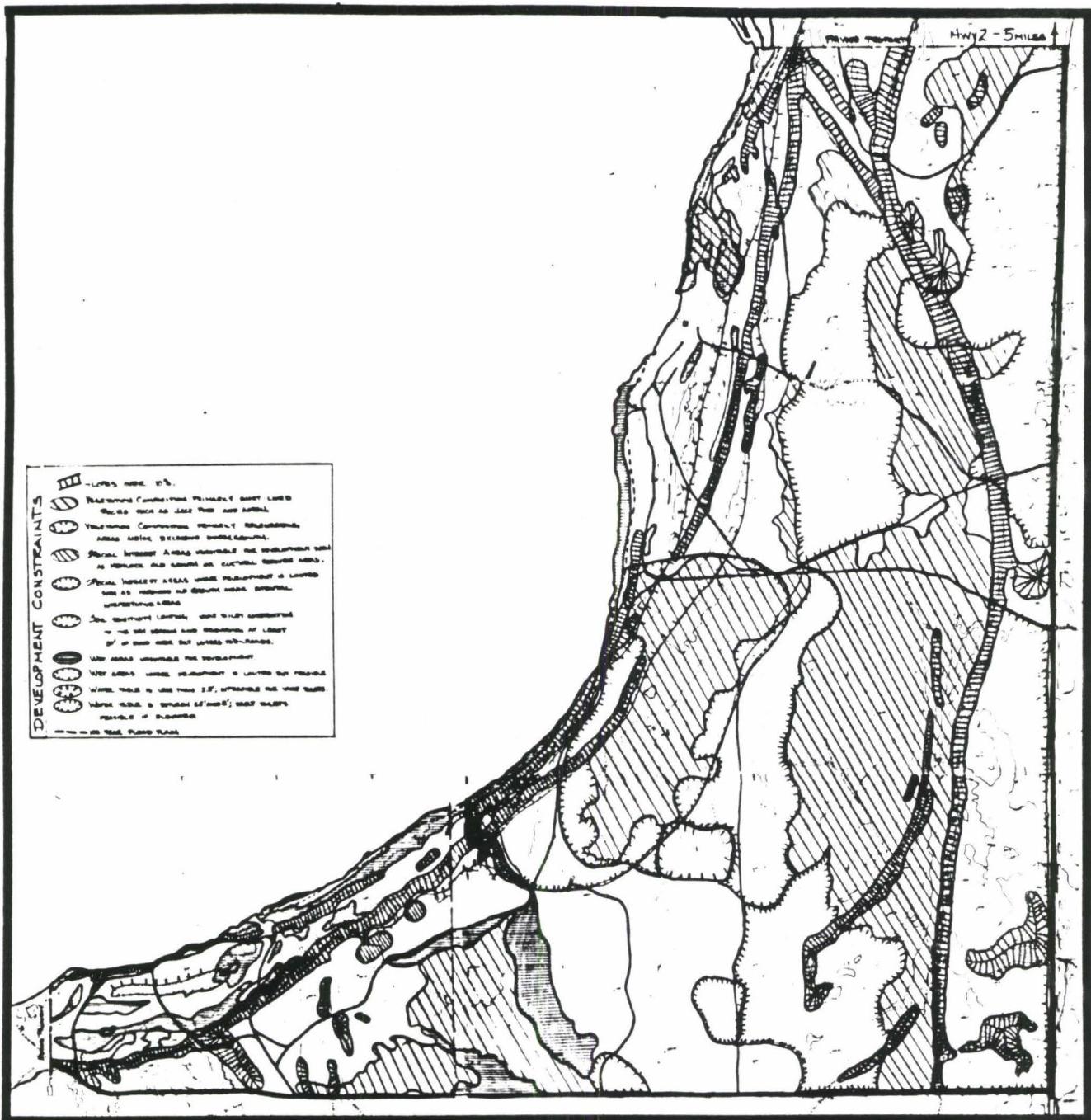
- Attempting to keep all utilities (roads, extra parking for visitors, toilets, and wells) behind the camping units so there is nothing "artificial" between the camper and the lake.
- Providing 50-75' between units for privacy.

- Locating most camp units within 100-200' of the water, paralleling the lakeshore and not locating camp units beyond 500' of the lakeshore.

9. The proposed area was first studied to determine which areas were unsuitable for development. The site analysis (page 33) displays those areas which would be adversely impacted if developed. These areas were "sieved out" from further consideration for development.

The remaining areas within 500' of the lake were given closer analysis (page 34). These were the areas where development would be concentrated in order to maximize access to, and views of, the lake.

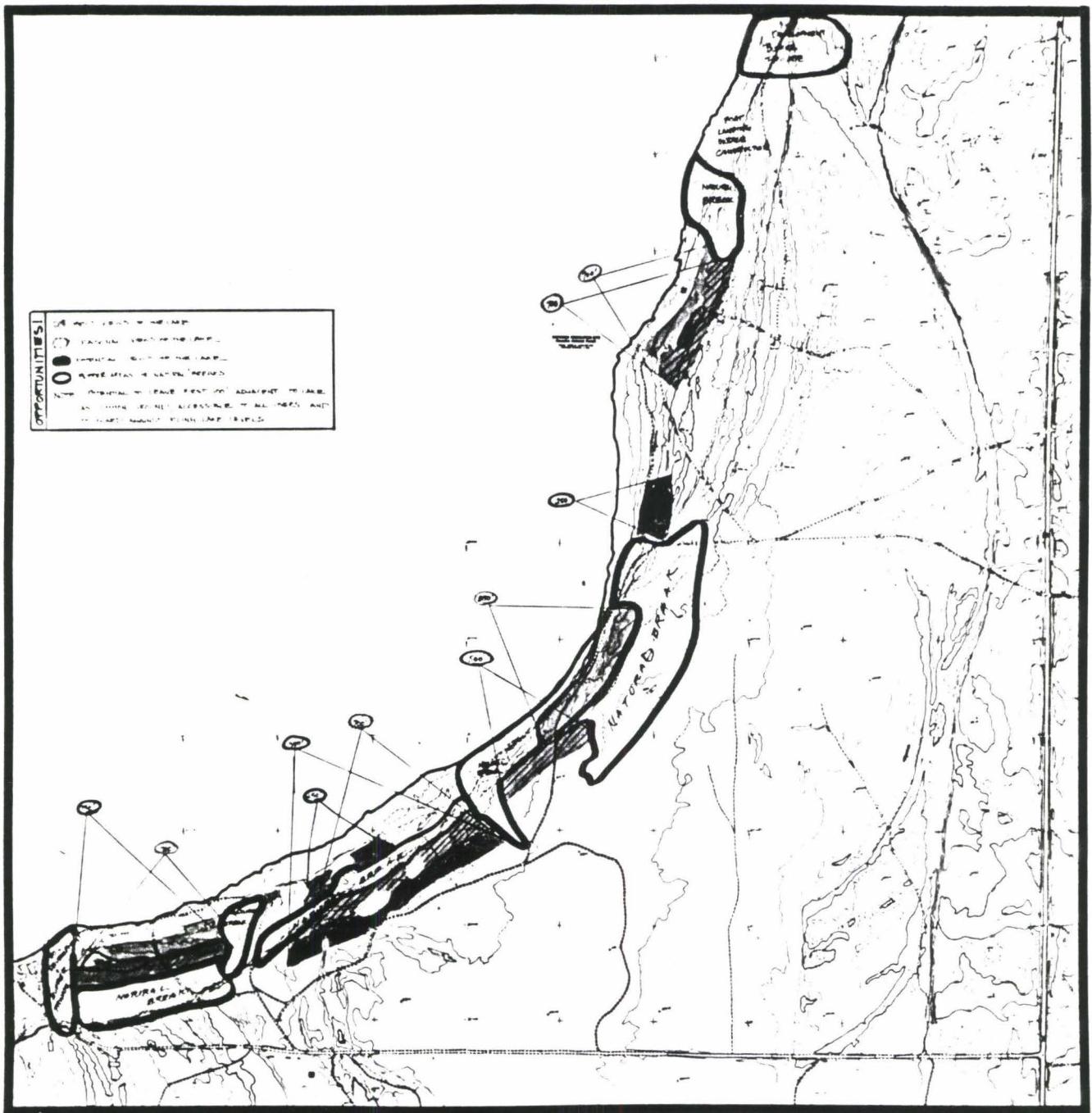
## SITE ANALYSIS: CONSTRAINTS



The colored areas display where development could adversely impact the environment. Most of the immediate shoreline proves unsuitable due to the coastal wetlands (blue) and slopes over 10% grade (black). In addition, some of this lake frontage has vegetative species too sensitive for development (red). These colored areas were then excluded from further development consideration.

Figure II - 4  
33

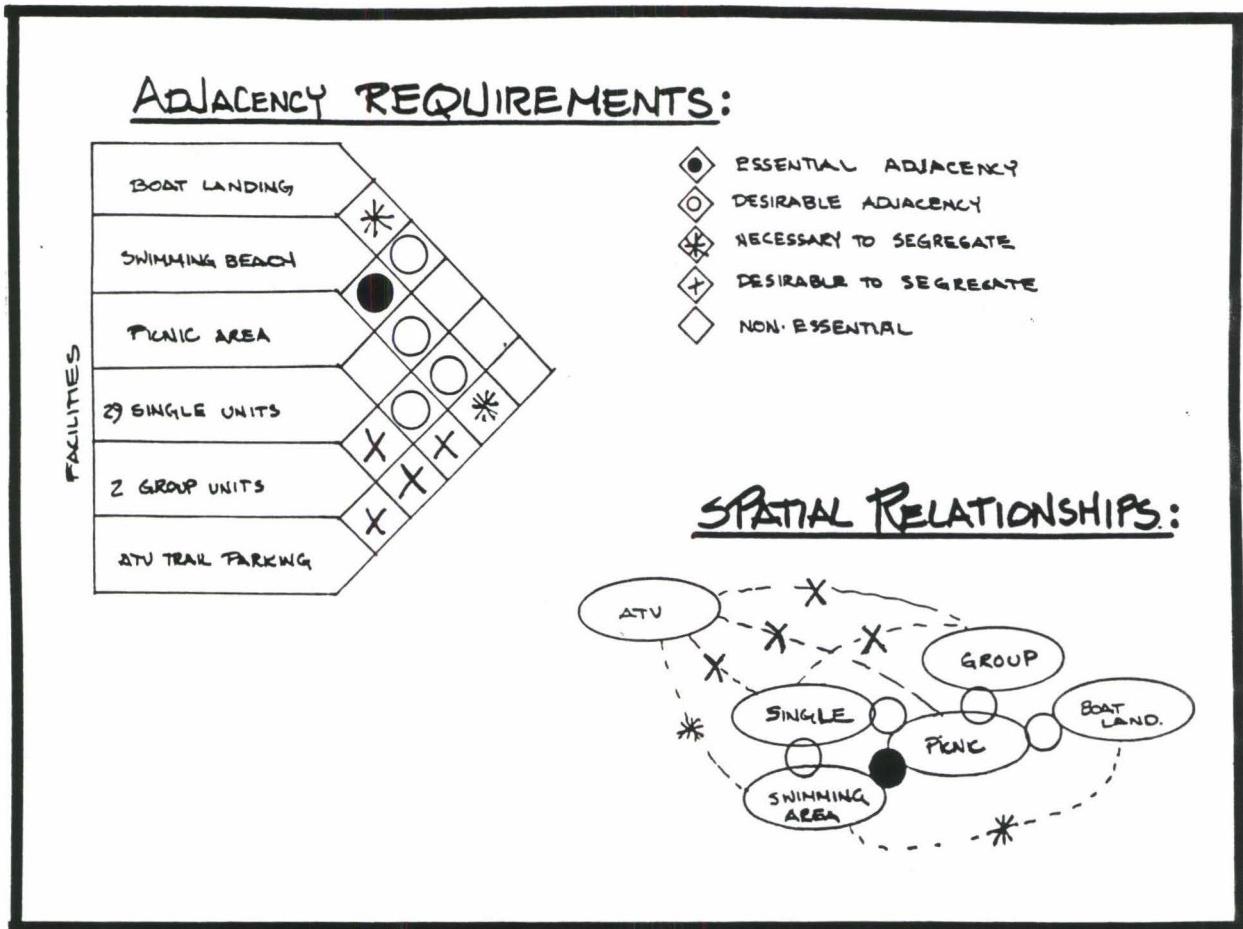
SITE ANALYSIS: OPPORTUNITIES



Suitable areas for development within 500' of the lake were analyzed for opportunities to view the lake. The first 100' from the water's edge was excluded from development to realize it's inherent value for pedestrian use. Areas which provided views were highlighted; existing views (yellow), seasonal views (yellow striped) and potential views dependent on vegetation removal (orange). Unsuitable areas were identified as opportunities to provide natural buffers or breaks to separate conflicting uses.

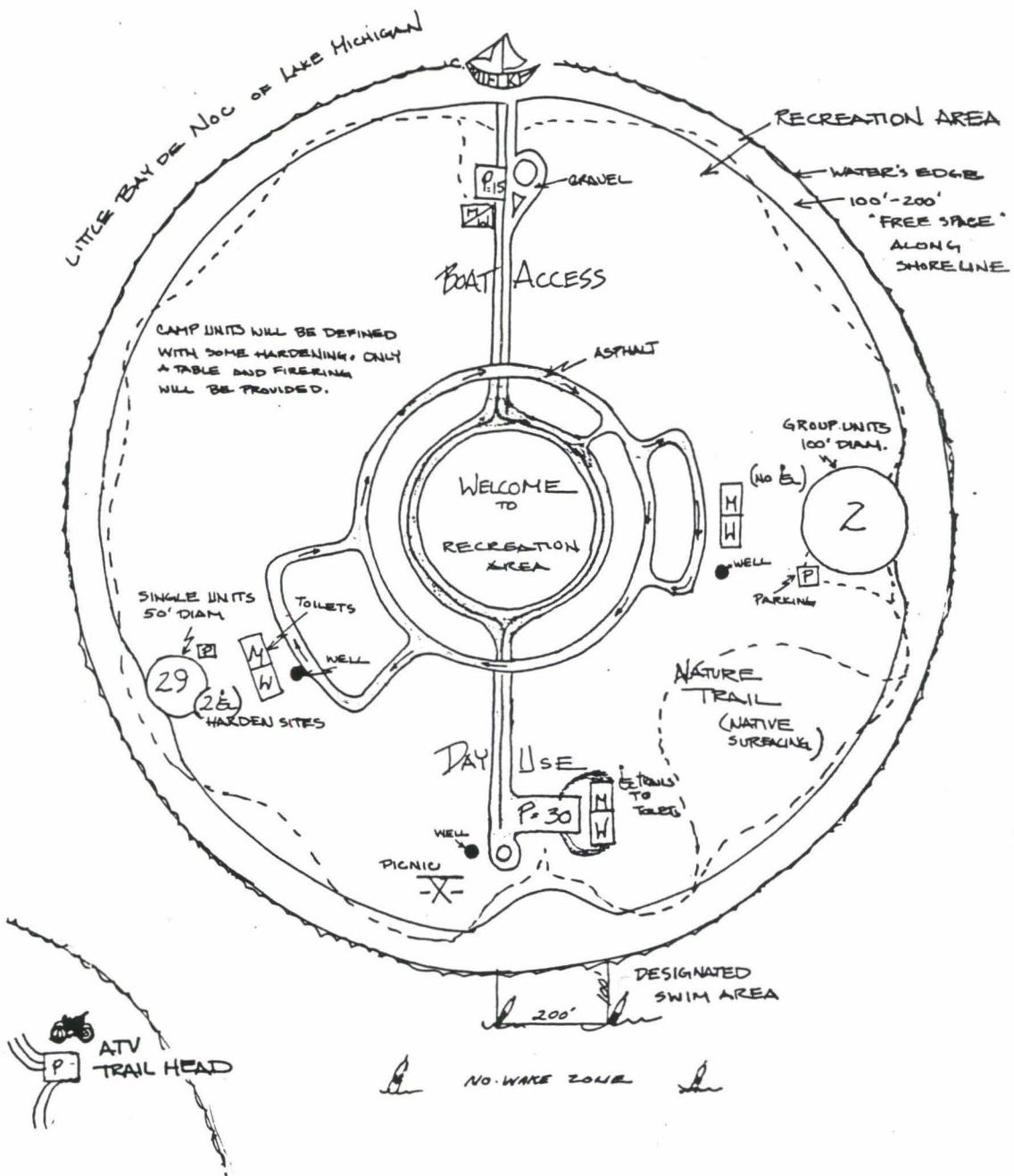
Figure II-3

10. Next, the proposed facilities were listed and related to each other, based on adjacency requirements as shown below. These facilities were then spatially arranged and relationships noted.



**Figure II-6**

A further enhancement of the facilities's spatial relationships is displayed as the "Design Utopia" (see page 36). These configurations present idealistic schemes to meet the design criteria of separating conflicting uses and meeting adjacency requirements.

THE DESIGN UTOPIA

**The Ideal:** One main road, the inner circle, connects all the facilities. The boat landing is as far from the day use as possible. Group units and single units are well separated but have access to the day use. Each camp unit has access and views of the lake. All utilities are located behind the units. ATV use is removed from the area. All are welcome along the shore and lake trail.

Figure II-7

Finally, a Possibility Matrix (see page 38) was constructed to analyze each specific area's potential to accommodate each facility or combinations of facilities. Several areas proved inadequate to meet the needs of the facility and are listed below. The remaining possibilities are potentially feasible design options.

- The "Maywood" area is not suitable for a picnic/beach area since the small bluff to the Lake is too steep. This limits the beach area since the waters edge is currently at the base of the small bluff. In addition picnickers would not be able to see swimmers creating a disadvantage for watching small children.
- The "Twin Springs" area cannot accommodate group camping use since most groups tend to be noisy, potentially disrupting nearby private residences.
- The ATV trailhead poses potential conflicts in all of the areas and has been proposed to be located several miles northeast of the recreation area. To meet the design criteria of restricting ATV use, all ATV use would be prohibited within the recreation development area.
- The boat landing is currently under construction in cooperation with the State of Michigan. Its present location was determined to be the only suitable location without infringing on the area's natural beaches and traditional use areas.

POSSIBILITY MATRIX

| ANALYSIS OF VIEW OPPORTUNITIES  | POSSIBILITY MATRIX   |   |   |  |       |
|---|--|---|---|--|-------|
|   | Beyond 500' from Lake; Expansion Possibilities   | 210,000 ft sq   | 360,000 ft sq*  | 280,000 ft sq/<br>480,000 ft sq  | Norie |
| Nice - but no view  | 150'/250'/200'/200'/<br>1300'/100'/100'/600'   | 500*/400*/<br>100*/300*   | 450'/300'/250'  | 300'/100'  |       |
| Potential views - if heavily thinned (orange)                         | 650' if thin 3500 ft sq<br>200' if thin 3000 ft sq<br>250' if thin 3000 ft sq  |   | 950'/250' if thin 14,000 ft sq  | 750'   |       |
| Seasonal views - could also thin to gain prime views (yellow striped) |  |   | 400'/100'/200'  |  |       |
| Prime View (yellow)   | 700'   | 850* if thin 4000 ft sq   |   | 700'   |       |
| AREAS   |  |   |   |  |       |
| FACILITIES  | NORTH MAYWOOD  | MAYWOOD   | THE OAKS  | TWIN SPRINGS   |       |
|   | +Uses prime views<br>+Excellent nat. beach<br>+Little fill needed<br>?Adj. to boat landing<br>-dedicates too much lakeshore to day use.<br>?Dev. with single units beside beach & picnic area? | -Steps needed to access water<br>-Sand beach depends on water level<br>-poor supervision  | +Stack: beach/picnic/camp<br>+Away from boating<br>+Allow nat. beach for camp.<br>-Some camp overlook parking<br>?Screen<br>-Fill 14,000 ft sq for artificial beach<br>?Limit picnic space? | +Excellent nat. beach<br>+No other space so limit.<br>+Max distance from boat launch<br>-Prime water skiing drop |       |
| Single Units  | +Uses prime views well<br>+Uses potential views (8)<br>+Expansion possible<br>+Area for open space**<br>+Provides 14 units with views<br>-Fill 10,000 ft sq                                    | +Allows prime views<br>-No expansion<br>-Lake trail adj. to sites<br>-More roading needed (disturb old growth)<br>-Difficult to access                                      | +Uses seasonal views (6 units)<br>+Uses potential views (7 units)<br>+Good expansion<br>+/-Fill 14,000 ft sq for seasonal views (3)<br>+/-Overlook picnic??<br>-No prime views              | +Prime views (7) by filling 12,250 ft sq<br>-No expansion  |       |
| Group Units   | +Allows potential views of lake leaving 8 single units w/prime views well separated from group. (If group units had prime, only 5 single units with potential views)<br>+Trad. use             | +Isolates group users<br>+Prime view both sites<br>+Trad. use<br>+Own access to water<br>-No expansion<br>-Access difficult<br>-Site adj. to lake trail<br>?Re-route trail? | +Enough room to separate from single units (6 units with seasonal and potential views)<br>-No prime views<br>+If group only - limits much area for camp. development                        | +Prime views<br>+Own nat. beach<br>-Not enough area to allow single use too                                      |       |
| ATV Lot   | Could locate beyond 500' zone  | Nope! Too fragile   | Too many terraces but beyond 500' OK!   | Limited amount of area but possible  |       |
| Boat Landing  | Currently located north of "North Maywood" near "Hunters Point". Possibly could also use as a winter recreation parking area for ice access for fishing, cross-country skiing and snowmobiling |   |   |  |       |
| + = Positive outcome  | *Prime old growth and very sensitive, will tolerate only some development  |   |   |  |       |
| - = Negative outcome  | **Open space desirable for use/play areas adj. to camp units.  |   |   |  |       |
| ? = Outcome uncertain   |  |   |   |  |       |

Figure II-8

All of the design options attempted to maximize the number of camp units with a view of the lake by locating the units parallel to the lakeshore. The natural "buffers" were used to separate conflicting uses/facilities. Wetland filling was kept to a minimum with the exception of possibly locating the day use at "The Oaks" area, shown in the Green Option. Several other designs were initially considered which also located the day use at "The Oaks" area. Upon further analysis, these options, including the Green Option, were considered infeasible due to the required filling of the wetland shoreline. Several other initial designs also considered different locations for the group units besides "Maywood". These, however, limited the number of total camping units provided and consequently were eliminated from further analysis. The remaining design options that were given further consideration were the Blue Option, Orange Option, and the Red Option. Conceptually, the spatial arrangements are similar, with the exception of the day use location and the resultant total number of single camping units.

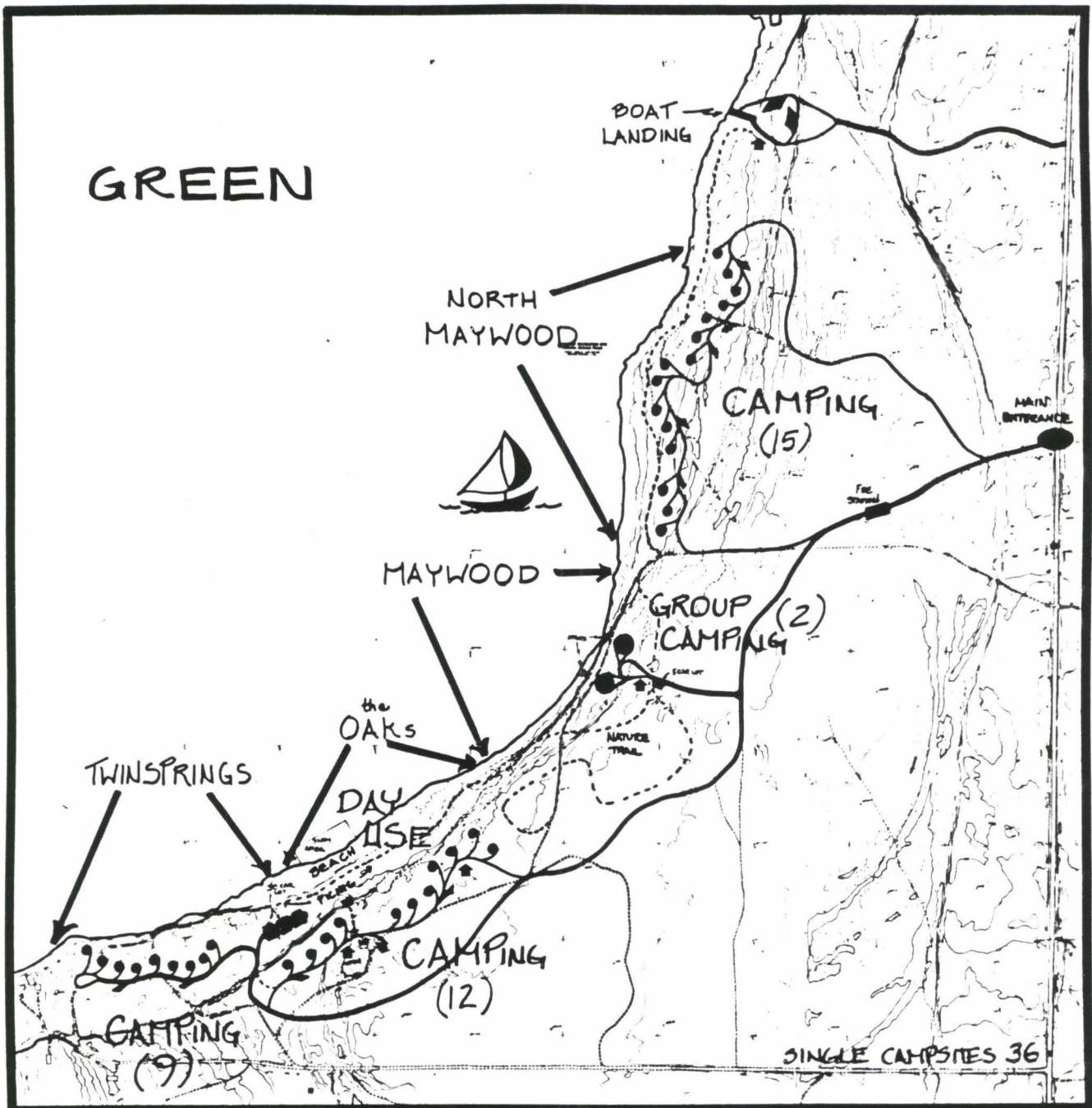
11. The design options considered for Little Bay de Noc Recreation Area are:

Green: A new beach area was proposed by filling a portion of the shoreline in "The Oaks" area to maximize the number of camping units along the shore (See page 41). This area seemed viable since it had the narrowest section of wetlands along the shore, requiring the least amount of filling for a new beach. This would not only allow

a greater number of camp units along the Lake but eliminate the need to displace traditional camping for a day use area (See Existing Use, Page 3). Further, this area along the shore of "The Oaks" was only suitable for day use or public use because of the "overlooking" terrace of campers. So, if this portion of shoreline was not developed for day use, it would remain undeveloped. After considerable analysis, the option of filling for the day use was abandoned since this unique ecosystem of the Great Lakes Coastal Zone would be adversely impacted. In addition, an artificial beach might not weather the impact of rising lake levels as gracefully as the natural beaches.

The Green Option displays another consideration that also proved too costly. The "Maywood" area was determined as the most suitable area for the group use since natural buffers provide the separation needed from the single camping units. This maximizes the use of suitable shoreline for development. However, the Green Option places the group units nearer the bluff and closer to the lake. Access to these units would either interfere with the Lake Trail or disrupt the sensitive old growth hemlock. In addition, these units would monopolize this mid-section of the Lake Trail. Consequently, in all of the other options, the group units are located just south and west of the hemlock in the "Maywood" area, enabling a better view overlooking the lake.

THE GREEN DESIGN OPTION



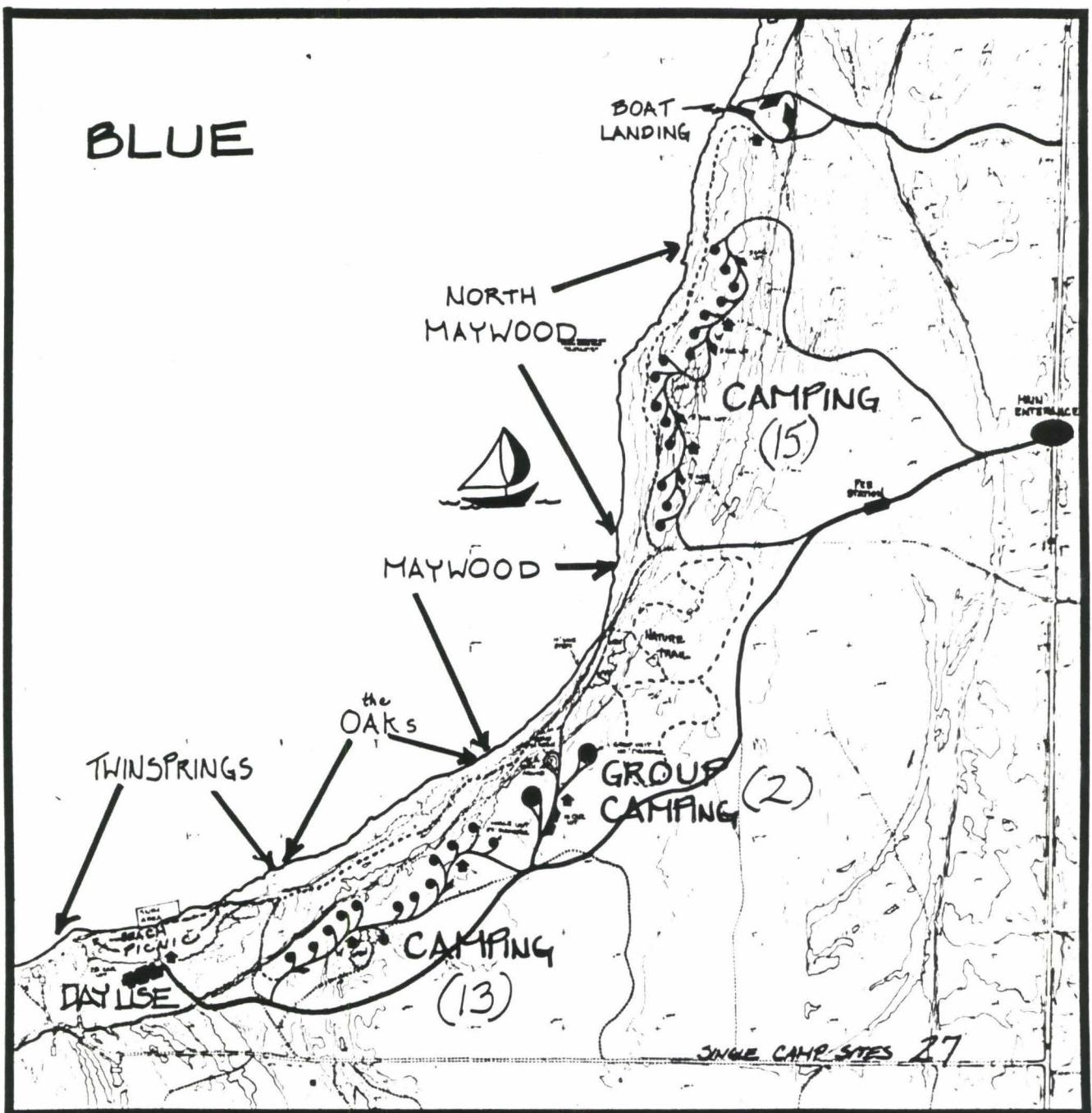
The Green design option maximizes the number of campsites by filling a narrow section of wetlands in the "Oaks" area. Group camping units are located in the existing use areas at "Maywood" maximizing direct access to the shoreline. This option upon further analysis was excluded as a feasible option since filling of the wetland proved too adverse an impact. In addition the group unit location would not only impact the hemlock but monopolize the "Maywood" area impacting use of the lake trail.

Figure II - 9

Blue: The Blue Option dedicates an entire area to day use (See page 43). By dedicating an entire area to day use, the option remains open for potential future expansions of the campgrounds. Since these future units would have to be located away from the lakeshore, the day use would need to be designed large enough to accommodate this potential increase in use. The "Twin Springs" area is the most suitable area to be dedicated solely to day use. A 30 car lot could easily be provided. The beach is natural and the area has been traditionally used as a day use area. In addition, the area is already confined by the ancient beach terrace and surrounding wetlands. "North Maywood" was also considered solely day use, however, this severely limited the number of camping units that could be provided and, therefore, was excluded.

The Blue Option was not selected as the Preferred because the day use occupied such a large segment of shoreline, limiting the number of lakefront camping units.

THE BLUE DESIGN OPTION

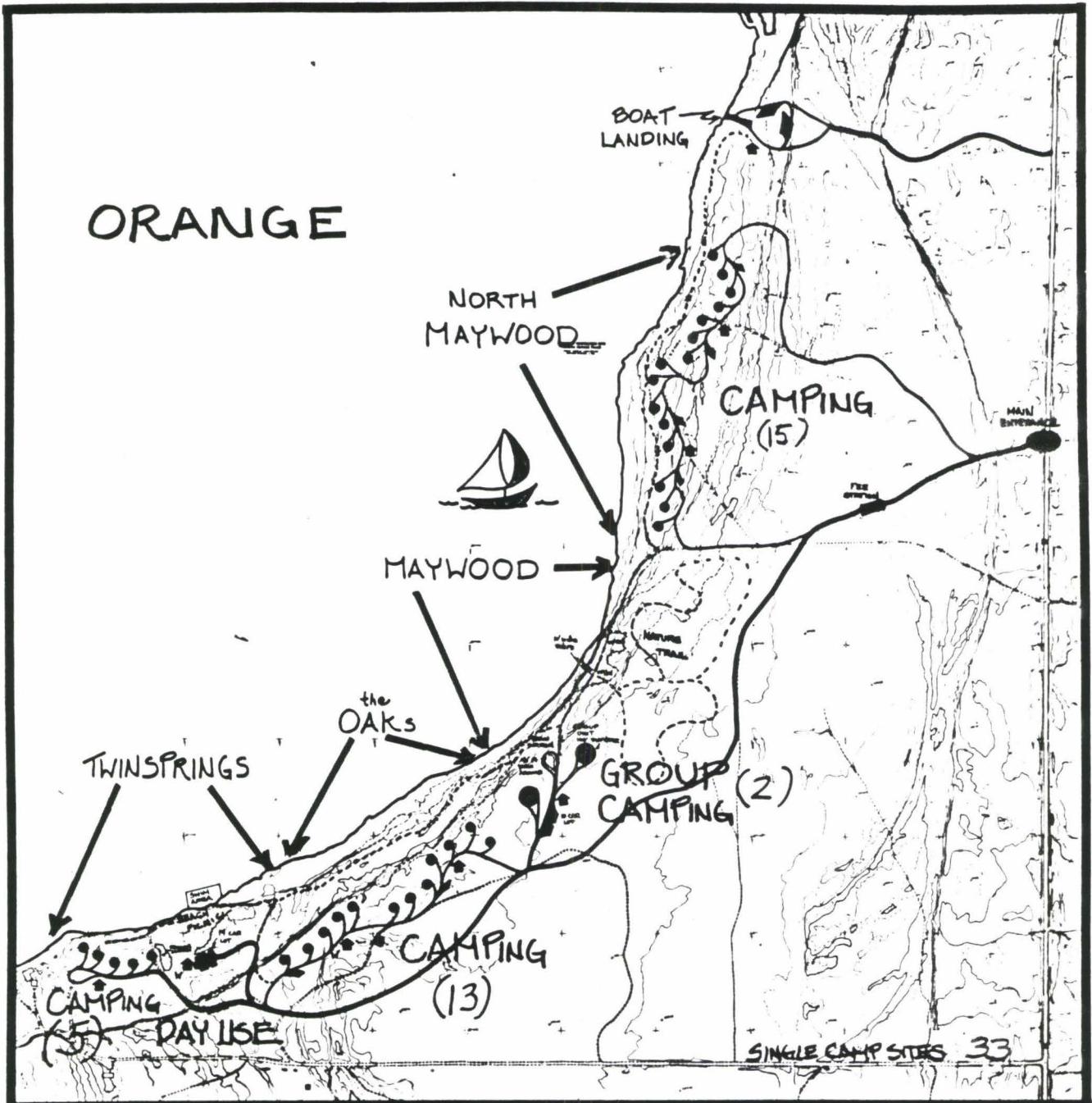


The Blue design option encourages day use by dedicating the entire shoreline of "Twin Springs" as a picnic and beach area. This limits the number of single camp units to 27.

Figure II-10

Orange: The Orange alternative proposes combining camping and day use at the Twin Springs area (See page 45). In order to accomplish this, the day use parking was limited to a 15-car lot. Even with this reduced day use area, there seemed to be a high potential for conflicts between the day use and camping because of the confined area. Further, the day use would have segregated these few camping units from the rest of the campground.

THE ORANGE DESIGN OPTION



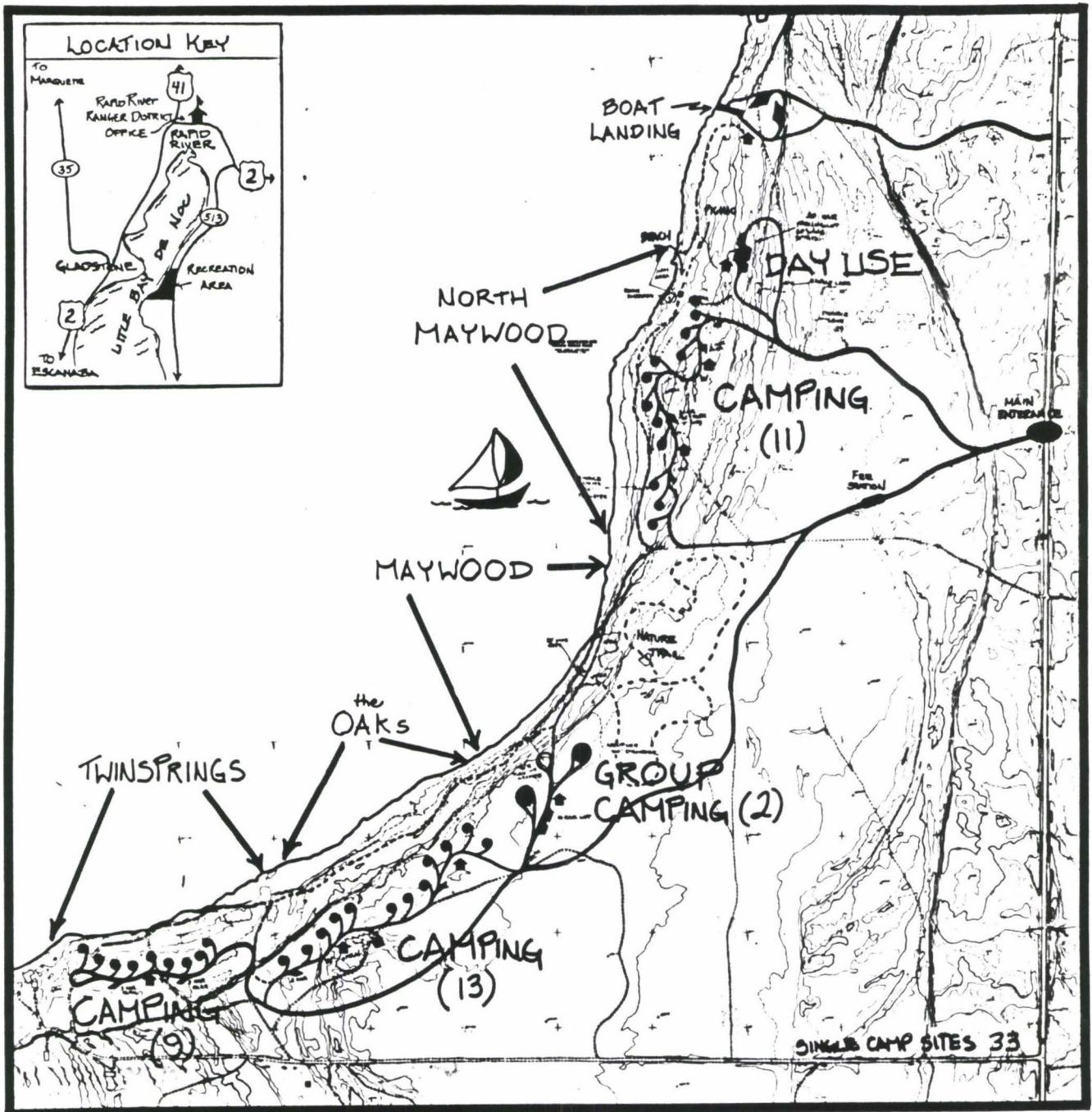
The orange design option combines the day use and camping at the "Twin Springs" area. Combining these uses in this confined space limits the size of the day use but does allow more available camping units at the lakeshore for a total of 33 single camping units.

Figure II-11

Red: The Red Option proposes to combine day use with camping at North Maywood (See page 47). The "North Maywood" area is larger, providing the space needed to accommodate both of these uses, however the day use parking is limited to a 20 car lot. Further, the Red Option keeps the day use and boat landing to the north, and the overnight camping use to the south.

12. The Red Option is the Preferred because it best meets the design criteria. The Red Option minimizes user conflicts by adequately separating the day use from the overnight use. And, most importantly the Red Option maximizes the number of camping units with views to the lake while being environmentally sensitive to this beautiful section of Lake Michigan shoreline.

THE RED DESIGN OPTION



The Red Design option combines the day use and camping at "North Maywood". Combining these uses is feasible since the size of the area provides adequate spacing between uses. By combining these uses in one area, more camping units are available at the lakeshore for a total of 33 single camping units.

Figure II-21

## **CHAPTER III**

**PUBLIC INVOLVEMENT**

The public's involvement was necessary in this recreation planning process to understand their needs and desires. The public was consulted<sup>1</sup> to identify issues, concerns and opportunities as well as future management strategies for the area. Ongoing discussions with the affected publics have given this planning process an advantage to help ensure its success as a recreation facility.

The Forest Service has had plans to develop the area for recreation since the 1960's when they acquired most of the land. Preliminary plans were studied in the 1970's. Public meetings were held in the spring of 1980 and 1982 to identify issues, concerns and opportunities and discuss possible management strategies. These responses were compiled as part of the ICO's in Appendix C and used as the basis for the entire concept planning process.

The public has been encouraged to participate in the process through direct contacts and public meetings as well as newspaper articles. The Hiawatha National Forest Land and Resource Management Plan which schedules development of the area, invited comments during the public review period. Although there were no responses to the Forest Plan specifically concerning this development, respondents did state a general preference for rustic campgrounds of smaller size and fewer campsites within campgrounds. People who use the area also expressed the concern to design a rustic campground.

<sup>1</sup>IPMP, Citizen Participation Handbook for Public Officials and Other Professionals Serving the Public (1986).

Concerns have been expressed however by some of the people who currently use the area regarding three changes that would occur once the site is developed. First the length of stay would be limited. Second, camping would be designated to specific sites, limiting capacity. And third, a fee would be charged to camp. These changes are eminent upon development, regardless of the design.

If the area were not developed, either use would need to be restricted to prevent resource degradation or the area closed. Limiting use would severely restrict camping capacity because there are only two existing toilets. More toilet facilities could be added, but existing use conflicts would only be compounded. Separating these conflicting uses can only be effectively accomplished by planning on a broad scale to place uses where they are compatible with each other, and the resources. Just limiting camping capacity would not adequately protect the site. The fragile soils and vegetation of this coastal zone require designated camp units, roads and parking lots to restrict the vehicular traffic to surfaced areas. Closing the area to recreation is not considered feasible. At one point in the 1970's this was attempted but the public outcry was too great and the area was re-opened.

It is understood from public meetings, workshops and conversation, that this area is special to many people. They are concerned about keeping the area special. Although development may bring about some new changes, in general the affected public agrees that the area needs to be developed to protect the site so as to allow people to continue to enjoy the area.

In November of 1987, the Forest Service again consulted the public to determine if the design solution, the Red Option, would meet their needs or if changes to the design might be necessary. The affected public was notified of the meeting by personal invitations (See page 53), in addition to newspaper articles inviting all those interested to attend. At the meeting, many questions were asked to clarify the need to develop, fee determination, and camping regulations. Questions were also addressed concerning the design itself: the size of the camping units, the need to place the units back from the lake, and the number of, and distance to the toilets.

Following consultations with the public, the Hiawatha National Forest accepted the Red Option as the concept design solution for the development of Little Bay de Noc Recreation Area.

Public involvement needs to continue as plans are finalized and construction begins. The publics contacted previously should again be consulted even after the area has been developed. The development's success or failure in meeting their needs should be documented. Use could be monitored to note the types of users, occupancy rates, and preferences in camping. District staff should also be consulted on the effectiveness of the design in meeting administrative and resource needs.

In conclusion, the Concept Plan for Little Bay de Noc Recreation Area evolved from people. The evolution of this concept plan can be traced back through the process to the ICO's which were identified by people. Because these ICO's directed the development of the concept design,

only an integrated resource management<sup>1</sup> approach could be taken, involving people.

This paper is dedicated to these people that care for this special place.

<sup>1</sup>USDA-Forest Service, Eastern Region, Working Together for Multiple Use: Integrated Resource Management (1985)

# An Invitation for Your Thoughts...



The Hiawatha National Forest, USDA-Forest Service invites you to attend a presentation and discussion to finalize our proposed recreation design for the Maywood area.

\*DATE: Tuesday, November 10th

\*TIME: 7:00 p.m.

\*PLACE: Rapid River Ranger District Office

\*We're interested in knowing what you think. Bring your family and friends. Come share your thoughts with us at the meeting or write me:

Joel D. Holtrop, District Ranger  
Rapid River Ranger District  
8181 U.S. 2  
Rapid River, Michigan 49878

I'm looking forward to hearing from you.

*Joel D. Holtrop*

Joel D. Holtrop

This flyer invited interested publics to attend a meeting at which the preferred design for the proposed Little Bay de Noc Recreation Area was presented and discussed.

## MAYWOOD---A Special Place, Enjoyed by Many

Over the last several years, people have shared with us their expectations of the Maywood area. Based on these comments and analysis of the site, some changes are needed to keep Maywood special. Development is necessary to provide a safe and healthy place to enjoy Lake Michigan while protecting the coastal area.

The design proposal for this Little Bay de Noc Recreation Area is sketched below. Several design options were considered. Before plans are finalized, I hope you will take this opportunity to share your thoughts with us.

Changes necessary in developing the area are listed below.

- DESIGNATED CAMPING UNITS — 33 single units and two group units are planned with toilets and well water nearby. Fees will be charged for camping.
- BOAT LANDING — A 15-car/trailer parking lot and boat launch are currently under construction. A toilet is also planned.
- DAY USE — A 20-car parking lot, toilet and well water are planned for a picnic area, beach and designated swimming area.
- ROADS AND PARKING LOTS — All roads and parking lots will be surfaced with asphalt to reduce the dust, noise and maintenance.
- DESIGNED FOR WHEELCHAIR USE — All the toilet buildings, wells and picnic tables will be designed to accommodate wheelchairs. Two single-camp units will also be surfaced as well as the trail at the picnic area.

Here's What Is  
PLANNED...

### LITTLE BAY DE NOC

RECREATION AREA  
HIAWATHA NATIONAL FOREST  
RAPID RIVER RANGER DISTRICT  
T-40N. R. 22W.

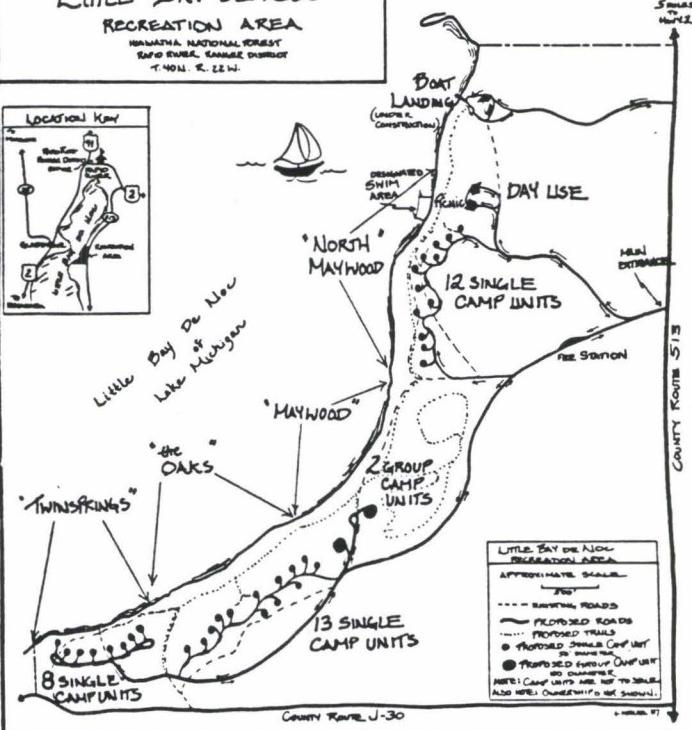
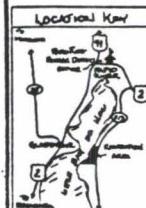


Figure III-1

## CHAPTER IV

### SOURCES AND SELECTED BIBLIOGRAPHY

## SOURCES

### **Individuals**

- Many people have shared with the Forest Service their concerns in managing the area. Visits, phone conversations, letters and participation at meetings have all been instrumental in developing this concept plan. Individual names are listed with the Rapid River District Ranger.

### **Private Business**

- Hilltop Camper RV Center, Escanaba, MI
- Jean Meek, Ken Kae Travel Park (located 31 miles west of Escanaba), Valcan, MI 49892
- Thesese Fix, Vagabond Resort and Campgrounds (located on Little Bay de Noc of Lake Michigan), Rapid River, MI 49878
- Pioneer Trail Park (located on Escanaba River), Escanaba, MI 49829

### **Public Agencies**

- Delta County Chamber of Commerce
- James Harter, Wells State Park (located on Green Bay of Lake Michigan), Cedar River, MI 49813
- Jack Jorgenson, MDNR, Waterways Division, Gladstone, MI 49837
- Art Kraivester, MNDR Waterways Division, Regional Supervisor, Marquette, MI
- Susan K. Prinz, MDNR, Division of Land Resource Programs, Shoreland Management Unit, Lansing, MI 48909
- Claude Schmidt, MDNR, Land and Water Management Division, Marquette, MI

### **USDA Forest Service - Hiawatha National Forest**

- Orville and Bella Owen, Maywood Camp Host Volunteers, Escanaba, MI
- Joel Holtrop, District Ranger, Rapid River, MI
- Richard Elegreet, Assistant Ranger - Recreation, Rapid River, MI
- Ron Hansen, Assistant Ranger - Timber, Rapid River, MI
- Anne Okonek, Forester, Rapid River, MI
- Bill Noreus, Forestry Technician, Rapid River, MI

- James Phillips, Forestry Technician, Rapid River, MI
- Randy Parr, Forestry Technician, Rapid River, MI
- Dawn Hanson, Receptionist, Rapid River, MI
- Susan Alexander, Clerk, Rapid River, MI
- Margaret Edwardsen, Support Services Specialist, Rapid River, MI
- Raino Maki, Supervisory Construction Representative, Rapid River, MI
- Kerry Doyle, Marcel Verbrigghe and Wally Blanc, Jr., Civil Engineering Technicians, Rapid River, MI
- Art Easterbrook, Recreation Staff, Escanaba, MI
- Loren Woerpel, Information Staff, Escanaba, MI
- Darlene Wilson, Procurement Assistant, Escanaba, MI
- Anna Slade, Business Management Assistant, Escanaba, MI
- Carmen Dahn, Receptionist, Escanaba, MI
- Judy Lang, Resource Assistant, Escanaba, MI
- Bob McHugh, Recreation Staff Assistant, Escanaba, MI
- John Franzen, Archaeologist, Escanaba, MI
- Connie Athman, Hydrologist, Escanaba, MI
- Jerry Wigger, Soil Scientist, Escanaba, MI
- Ned Crawford, Lands, Escanaba, MI
- Jay Stephan, Public Affairs Specialist, Escanaba, MI
- Don Elsing, Wildlife Biologist, Escanaba, MI
- Donna Iraneta, Computer Assistant, Escanaba, MI
- Andrew Lehto, Supervisory Civil Engineer, Rapid River, MI
- Nancy Rydquist, Civil Engineer, Rapid River, MI
- Howard Guindon, Engineering Draftsman, Escanaba, MI
- Ray Young, Engineering Draftsman, Rapid River, MI
- Ron Hannan, Operations Research Analyst, Escanaba, MI
- Marilyn Booker, Computer Assistant, Escanaba, MI
- Ken Holtje, Forest Supervisor, Escanaba, MI

**USDA-Forest Service - Eastern Region**

- Buzz Durham, Project Spirit Pilot Study, Milwaukee, WI
- John Kuhr, Landscape Management, Milwaukee, WI
- Robert Rosenthal, Photogrammetry Section, Milwaukee, WI

This list is by no means all inclusive, there are many people too numerous to mention who have been involved over the last 20 years. A special thanks to Laura Fergusen and Bill Duncanson, the past two previous Landscape Architects.

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**APPENDIX**

**Appendix A****A LITTLE BACKGROUND**

## Appendix A

A LITTLE BACKGROUND<sup>1</sup>

DESCRIPTION The Maywood-Twin Springs area, is the local name for the proposed development of the Little Bay de Noc Recreation Area. The area is located in Sections 23 and 26 of T40N, R22W, about seven miles south of Rapid River, Michigan (See page 3 for the Existing Use Area). The Maywood-Twin Springs area is approximately 350 acres and has about 4,250' of water frontage along the east shore of Little Bay de Noc of Lake Michigan. One-half mile west across Little Bay de Noc is the city of Gladstone. The site is easily accessible by the paved County Road 513 and graveled County Road J-30. Several lower standard roads access the interior of the tract.

BACKGROUND

The Maywood-Twin Springs area was acquired by the Forest Service in the mid-1960s from the State of Michigan and the Escanaba and Lake Superior Railroad, with the exception of the Marz-Smith tract (acquired in 1987).

The Twin Springs was conveyed to Ensign Township in 1941 from the State of Michigan under a public use deed for development of a park. Ensign

<sup>1</sup>Background information was primarily provided by Dick Elegreet, Assistant Ranger-Recreation, Rapid River District, Hiawatha National Forest

Township maintained the park until about 1961. The maintenance was poor as the ownership was working with limited funds. At that time, the Township Supervisor went to the State of Michigan and tried to get the tract transferred to National Forest ownership, with the hopes it would get better care.

The tract was then included in an exchange between the Forest Service and the State of Michigan. The exchange took approximately five years to complete and included some 800 acres of State land for 140 acres of National Forest land plus the Wyman Nursery located at Manistique. Since that time, the area has been managed as a dispersed recreation area by the Forest Service.

Immediately after acquisition of the area, the Forest Service developed a concept design for a full-scale developed recreation facility. For reasons unknown, this concept was never approved. In the mid-1970s, recognizing the problems occurring in this area, an attempt was made to close the area to all public use. Because of strong local opposition, this idea was abandoned.

In the late 1970s and early 1980s, the possible development of the area for recreation was again revived. In 1982, an action plan was developed to bring about necessary changes until the area could be planned comprehensively. Some of the problems dealt with over the last decade are:

FY79 - Spot-repaired the road system; removed old fireplaces (remnants from the Township Park) from Twin Springs; and installed erosion-control facilities at Maywood.

- FY80 - Installed pit toilet at North Maywood; placed fire rings in the use area; held a public workshop in April of 1980 to find out user attitudes toward development; began assessment process for development; and examined the area for potential development.
- FY81 - Replaced a faulty vault toilet at Twin Springs; and spread and seeded topsoil in heavy use areas.
- FY82 - Installed additional erosion control/stabilization devices at Twin Springs and Maywood; held a public workshop in February of 1982 to discuss user conflicts and environmental damage; issued a Supervisor's Order which required a permit to camp; prohibited many activities associated with user conflicts and shoreline erosion; and installed three well points in the area to provide potable water and correct safety problems.
- FY83 - Changed routine Forest Service law enforcement patrol to evenings and weekends during July, the heaviest use month.
- FY84 - Landscape Architect, Transportation Planner, and Soil Scientist reviewed transportation system and proposed timber sale opportunities.
- FY85 - Sold Maywood Timber Sale to remove hazardous trees, and convert to longer-lived tree species in the area of the recreation site.
- FY86 - Implementation of the Hiawatha National Forest Land and Resource Management Plan, scheduling new recreation facility construction of the Maywood-Twin Springs area in the next 10 years.
- FY87 - Received design and survey funds and acquired the Marz-Smith tract from the Trust for Public Lands, ensuring the opportunity for a comprehensive design for the area. Construction of boat landing in cooperation with the Michigan Department of Natural Resources.

#### THE RESOURCES

Ownership: West and south of Twin Springs, the ownership is private. The private lands on the west are subdivided parcels with several homes that are year-round residences. At the north end of Maywood, near Hunter's Point, the private land is also subdivided, with both year-round and summer residences. Development of the recreation facility needs to take into account the close proximity of these residences so as to ensure their privacy by allowing an adequate buffer, especially from more heavily concentrated day use.

Soil and Water: The primary landforms are the former Lake Michigan shoreline or beach ridge swale complex along the shoreline and outwash sand plain further inland. Soils along the shoreline are primarily a complex of Croswell and Roscommon. Soils on the higher elevations, further inland, are primarily Rubicon sand. The soils in general are well-suited for campground use, except for the shallow water table characteristics of the Croswell and Roscommon soil types. The soils are also quite fragile, in that vegetation wears off and is difficult to re-establish, creating potential erosion problems.

The greatest erosion problem up until 1980 was trampling along the shoreline. However, with the Lake Michigan water levels presently at record highs, much of the shoreline has been severely eroded. According to the "High Risk Erosion Area Study" by the Michigan Department of Natural Resources, erosion is occurring at 2'/year along the Maywood tract (Section 23) and 1'/year along the Twin Springs tract (Section 26). The study uses this information to recommend development setbacks ensuring at least a 30-year protection of investment (average life of mortgage). The proposed facility should be located beyond these setbacks. The shoreline could then be dedicated as common area and the existing Lake trail retained for everyone's use.

The proposed site for development also lies within the Great Lakes Coastal Zone, requiring permits from both the Corps of Engineers and the Department of Natural Resources with regard to any filling of wetland or shoreline disturbance/development. The coastal wetlands are ecologically sensitive and should be avoided if possible to limit the amount of filling.

### VEGETATION

The timber type in the area is comprised mostly of jack, red, and white pine, with lesser amounts of aspen, northern red oak, hemlock, paper birch, and a few northern hardwoods with an occasional balsam fir, or spruce. The current Maywood Timber Sale has removed hazardous trees in the area and will allow conversion to longer-lived tree species. The larger old growth hemlock stands will be retained and provide an opportunity for a nature trail. An opportunity exists to eventually construct a trail north to U.S. Highway 2 to connect with the Bay de Noc-Grand Island Trail.

The understory is comprised mostly of blueberries, wintergreen, bracken fern, sweet fern, trailing arbutus, club moss, and grasses. There are lesser amounts of goldenrod, thistle, strawberries, bunchberry, aster, patches of red osier dogwood, and mountain ash. Opportunities exist to provide berry picking as well as encouraging the larger shrubs between sites for screening.

### CULTURAL FEATURES

There are two known prehistoric sites in the proposed recreation complex. They are small enough to be avoided during the site design and construction. The evaluation of these sites as well as more recent historical features may offer interpretation opportunities.

The northern end of the tract by Hunter's Point was called "slab dock". This was once a lumber loading dock that transported lumber on a barge to Gladstone. The mill was located somewhere near Hunter's Point. The exact location could not be determined without an archaeological survey. The old mill site could be on privately-owned land just north of the National Forest ownership. The old piling is the only remaining evidence of the original loading dock at Hunter's Point.

The North Maywood area had a ferry dock and was served by the ferry boat from Gladstone. In those days, street cars were the main transportation. The track started at Escanaba and ended approximately at the location of the Gladstone power plant. People came from Escanaba and could transfer from the street car to the ferry boat and get shuttled across Little Bay de Noc to the ferry landing. From the ferry landing, they would walk south on the old road to the Maywood Hotel (See page 68 for newspaper article).

The Maywood Hotel was used by those probably in the lumber business who stayed overnight to check their lumber and woods operations. With the old Hotel were three cabins with screened-in porches (locations currently unknown).

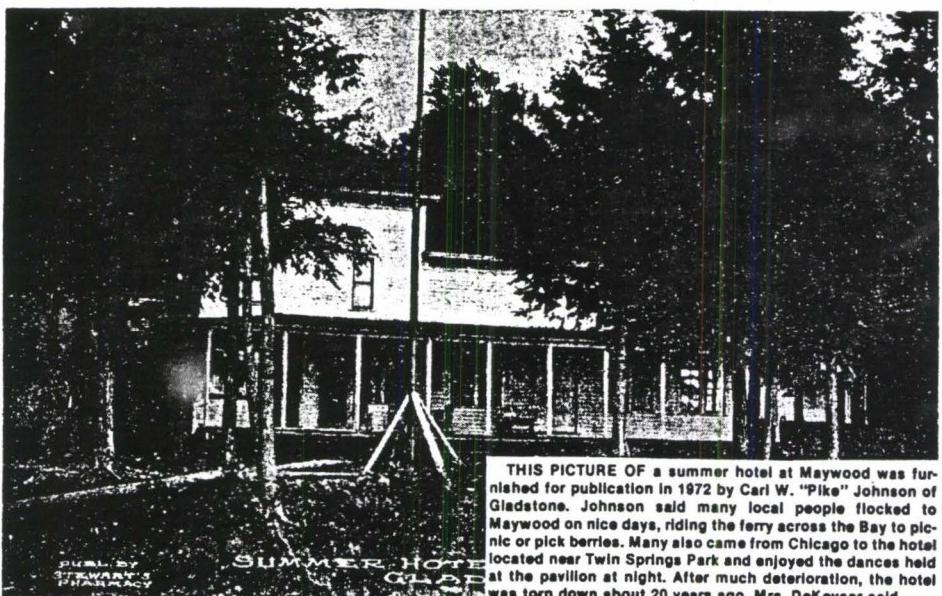
To the south of the Maywood Hotel is a small concrete slab that was installed by members of the Gladstone Yacht Club to be used as a dance floor, during the 1940s. The Yacht Club had their annual picnic in that area for almost 30 years, until the early 1970s, when they started using the pavilion in Gladstone.

There have been reports of an old pavilion somewhere in the neighborhood of the old Maywood Hotel site but the exact spot is not known.

The North Maywood and the Maywood areas were used by Gladstone residents during the 1920s and 1930s for camping areas. Many of the Gladstone families used the area for the summer months. They would go to the area when school was out and stay all summer to fish and pick blueberries. The berries were boated to Gladstone and sold to the local merchants. Some of the berries were canned in camp and used by the families during the winter months. In later years, from late 1940s to the present, Maywood and North Maywood have been used mostly for camping, picnicking, swimming, and boating by residents of Delta County.

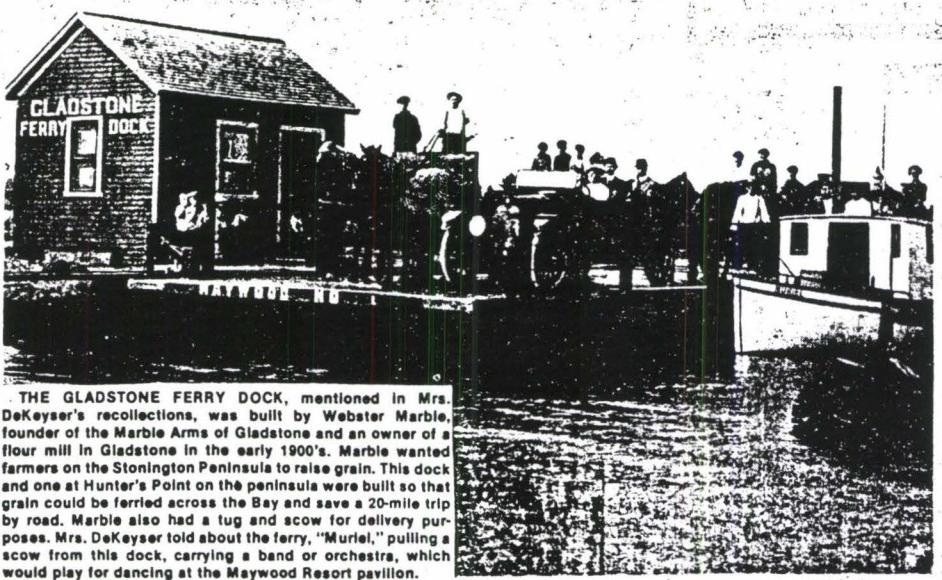
Development of the area needs to take into account not only the rich history of this areaa but also the current users. These people are extremely interested in keeping this place special for continued enjoyment of camping on Lake Michigan and should be consulted to participate in the design process.

# Maywood memories of the early 1900's recalled



**THE INVITING SPRING HOUSE** at Maywood is shown in this picture provided for publication by the Robert Hupy family from the collection of the late Russell Hetrick. The Spring House was located near the Maywood Resort Hotel, opposite Gladstone across Little Bay de Noc. Commenting on this picture when it was published in 1978 in The Reporter Historical Picture feature, Soren Johnson of Gladstone, a boy in the 1920's, said, "The ferry, 'Arbutus,' made trips back and forth to Maywood almost hourly. Whybrow took his horse and dray across on the barge that was often pulled by the Arbutus and I liked to hitch a ride with him."

THIS PICTURE OF a summer hotel at Maywood was furnished for publication in 1972 by Carl W. "Pike" Johnson of Gladstone. Johnson said many local people flocked to Maywood on nice days, riding the ferry across the Bay to picnic or pick berries. Many also came from Chicago to the hotel located near Twin Springs Park and enjoyed the dances held at the pavilion at night. After much deterioration, the hotel was torn down about 20 years ago, Mrs. DeKeyser said.



**THE GLADSTONE FERRY DOCK**, mentioned in Mrs. DeKeyser's recollections, was built by Webster Marble, founder of the Marble Arms of Gladstone and an owner of a flour mill in Gladstone in the early 1900's. Marble wanted farmers on the Stonington Peninsula to raise grain. This dock and one at Hunter's Point on the peninsula were built so that grain could be ferried across the Bay and save a 20-mile trip by road. Marble also had a tug and scow for delivery purposes. Mrs. DeKeyser told about the ferry, "Muriel," pulling a scow from this dock, carrying a band or orchestra, which would play for dancing at the Maywood Resort pavilion.

Mrs. Leona C. DeKeyser and other old timers of the Gladstone area vividly recall the fun and activity of the early 1900's at the Maywood Resort on the Stonington Peninsula across Little Bay de Noc from Gladstone.

Mrs. DeKeyser started setting type on the Linotype machine at The Delta Reporter when she was 16 years old. She also ripped up forms, did sweeping, etc. she said.

She was married 14 months later and didn't work again until she spent two years on the Linotype with the Sault Ste. Marie Evening News during World War I.

After the war, she returned to Gladstone and worked another two years for The Reporter. Her work at The Reporter was intermittent after the birth of her son but, in 1944 during World War II, she was hired by the Escanaba Daily Press as a Linotype operator, where she worked 20 years until her retirement in 1965.

Mrs. DeKeyser recently described in writing some of her Maywood memories of the years 1910 to 1916. The following article includes her notations.

Passenger boats playing Lake Michigan at that time, she said, included the Lotus and the Maywood, which came from Chicago and other lake ports along the way stopped at the Gladstone 10th St. Dock, where a desk clerk was on hand to check freight and passengers, then continued across the Bay to Maywoods.

There the boats were tied up to the large Maywood dock, where an enclosed depot was furnished with benches to accommodate waiting passengers. The dock was about 40' wide and 300' long and extended into deep water. It stood about 8' above the water surface, but several places were provided with steps alongside, so that those arriving or leaving by smaller boats could reach the dock level.

The visitors would walk about the length of the dock and about another city block to the beautiful, two-story, white hotel building. The hotel's large, ornate, open porch was furnished with hammocks and rockers. The hotel was built on a flat piece of land about 200 feet from the Bay Shore.

People who brought their horses and carriages by boat, would travel the bridal path to the barn in back of the hotel building, where the four-footed clientele of the resort would be cared for.

Captain Fisher and his family were the last to operate the Hotel. They stayed at Maywood all year around and their children came across the ice to school in the winter, Mrs. DeKeyser said.

The next attraction that would beckon the visitors would be the Spring House, a 10' by 10' screened-in building. Painted red and

white, it had a cement floor and benches around the exterior wall.

The Spring House housed the well or cistern, which was about 2½' in diameter with an intake pipe bringing natural spring water out of the hillside. A drain directed the overflow toward the Bay. Seldom could a Maywood visitor resist dipping one of the tin-cups hanging in the Spring House into the clear water for a thirst-quenching drink, she said.

Several cottages, which stood on the hillside, were rented to visitors and they had screened-in porches, swings and hammocks. Campers also set up tents in the area.

The Maywood Pavilion, set on an incline and surrounded by trees, was quite large. The upper half of the exterior wooden walls could be opened and swung up. Being in the pavilion was just like being out-of-doors, Mrs. DeKeyser said. Benches surrounded the interior and a space was provided for the orchestra.

The pavilion was very popular on Sundays, Mrs. DeKeyser said, and the big event of the season was the Eagles Picnic, which drew families from all over the country.

The ferry boat, the "Muriel," owned and operated by Fred Cole, made trips across the Bay from the Gladstone dock at the east end of town at Saunders Point, where the water plant is now located.

The "Muriel" made connections with the Escanaba streetcar which traveled to the end of Delta Avenue, within 50 yards of the Ferry Dock.

Often, the "Muriel" would pull a large scow or barge across the Bay bringing an orchestra or a band, which played music all the way across to Maywood. The band then set up to play for a dance in the pavilion.

Most of the families who rowed boats across the bay to pick blueberries in the Maywood area in July and August would sell their berries to buyers stationed on both sides of the bay.

To get to Maywood from Gladstone by horse and buggy required driving at least 20 miles. Mrs. DeKeyser said her father had a farm in the Maywood area and he would take her across the bay on the ferry and let her drive the horse home to Gladstone in the fall. A girl friend would accompany her, she said. "We would stop in Rapid River and get an ice cream cone, a special treat for the day."

The Gladstone Tenth Street boardwalk which led to the Tenth Street Dock was a busy place on Sundays, Mrs. DeKeyser said, as the young people, often walking six or eight abreast, would stroll the walk to the Bay to watch the boats come and go.

"The street was paved with cedar blocks and it was a pleasant sound to hear the horses clip-clopping along."

**EXISTING USE FIGURES**

EXISTING USE FIGURES

The following table was derived from an analysis of the camping permits that have been required since 1982. The table portrays the demand for this recreation site. The use season is normally from Memorial Day weekend through the Labor Day weekend.

RVDs

| <u>YEAR</u> | <u>TWIN SPRINGS</u> | <u>MAYWOOD</u> | <u>NORTH MAYWOOD</u> | <u>TOTAL</u> |
|-------------|---------------------|----------------|----------------------|--------------|
| 1982        | 10,000              | 2,000          | 13,000               | 25,000       |
| 1983        | 11,000              | 2,000          | 6,000                | 19,000       |
| 1984        | 9,000               | 2,000          | 5,000                | 16,000       |
| 1985        | 7,000               | 1,000          | 4,000                | 12,000       |
| 1986        | 5,000               | 2,000          | 5,000                | 12,000       |

The decline in use from 1982 and 1983 to 1985 and 1986 seems to reflects a growing dislike for the social problems associated with the current dispersed camping arrangement according to District staff who manage the area.

## Appendix C

### **ISSUES, CONCERNS AND OPORTUNITIES**

## ISSUES, CONCERNS, & OPPORTUNITIES FOR LITTLE BAY DE NOC RECREATION AREA

The following charts are formatted as displayed below:

| ICO's   | Design Considerations   | Accommodate |   |                                     | Mod. Dev. |
|---|---|-------------|---|-------------------------------------|-----------|
|   |   | 1           | 2 | Light Dev.                          |           |
| BOAT LANDING  |   |             |   |                                     |           |
| 1. --increase boating safety on the Great Lakes and increase Great Lake access (Forest Plan Chapter III Prob 3) | I provide boat access primarily for campers and I provide a safe harbor on IL. Michigan | 115-car lot |   | 115-car lot plus room for expansion |           |
| 2. -- safety concern and swimmers   | I locate away from design. land non-designated swim areas.                              | X           | X |                                     | X         |



| ICO's  | Considerations  | Accommodate | Light Dev. | Mod. Dev.   |
|--|---|-------------|------------|---|
|  |   | 1           | 2          | 3   |
| <b>SWIMMING AREA</b>   |   |             |            |   |
| 13.  -- stabilize beach  | grade to 5:1 slope  | X           | X          | X   |
| 14.  -- designated swim area   | safety reasons  | X           | X          | X   |
| -- provide for water skiing  | by locating desig. swim<br> areas not to eliminate<br> traditional skiing | X           | X          | X   |
| 16.  -- change house   |   | --          | --         | Provide<br> combination<br> change house &<br> toilet |
| 17.  -- toilet   |   | X           | X          |   |
| 18.  -- life guard   | not normally provided in<br> IF.S. dev.                                   | --          | --         | --  |
| 19.  -- On occasion fecal/coliform counts (bacti) have<br> reached moderately high levels (150 organisms<br> per 100 ml). On at least one occasion over the<br> past five years the count has exceeded the safe<br> level of 200 organisms/100 ml. | monitor at least every<br> two weeks                                      | X           | X          | X   |

| ICO's   | Considerations  | Accommodate   | Light Dev.   | Mod. Dev.                 |
|---|---|---|--|---------------------------|
|   |   | 1   | 2  | 3                         |
| <b>CAMPING - Provide for 125 PAOTS, Assoc. Toilet &amp; Water</b> |   |   |  |                           |
| 20.   | --Convert present dispersed camping to developed camping to protect the fragile coastal zone and provide a safer more sanitary camping and day use. | IEIS of Forest Plan   | X  | X                         |
| 21.   | -- desire lake views yet keep free public space adjacent to shoreline   | allow for shoreline protection                                      | allow for some views yet at least 100' set back for free space           |                           |
| 22.   | -- vault toilets convenient to units  | not closer than 100' of units, well or body of water                | within 500' of most units  | within 300' of most units |
| 23.   | -- accommodate 50' diameter single unit camping   | # of units  | 17   | 26                        |
| 24.   | -- accommodate group camping (5 units) 20-25 people 100' diameter (15 PAOTS)  |   | 6  | 3                         |
| 25.   | -- too crowded  | designate and # each site   | X  | X                         |
| 26.   | -- fees - determined from base index analysis   | registration or camp fee  | X  | X                         |
| 27.   | -- RV camping   | surface only if needed to protect environment                       | surface at all sites (except hikin)                                      |                           |
| 28.   | -- tent camping (restrict use of gravel pads)   | allow at all sites by restricting size of gravel pad                | X  | X                         |
| 29.   | -- single units hike in (at N. end or Maywood/Host Site) with view of lake  | --  |  | X                         |
| 30.   | -- maintain "rustic" appearance   | new facilities will be of the rustic variety* - IEIS of Forest Plan | No conveniences  | few conveniences          |
| 31.   | -- extra designated parking for visitors/trailers   | environmental protection  | X  | X                         |
| 32.   | -- overflow camping   | restricted by size of day use area                                  | develop # of units based on ICO's site capacity and alternative's theme. |                           |
| 33.   | -- pump within 300' of most units<br>500' of most units<br>1000' of most units  |   |  | X                         |
| 34.   | -- keep picnic tables at site   | tables provided for each site                                       | X  | X                         |

| ICO's                      | Considerations   | Accommodate  | Light Dev.  | Mod. Dev.          |
|----------------------------|--|--|---|--------------------|
|                            |  | 1  | 2   | 3                  |
| <u>CAMPING (Continued)</u> |  |  |   |                    |
| 35.                        | --play fields/open areas adj. to site for group activities, i.e., volleyball, etc. | surface 1000 sq. ft.<br>/5 PAOTS:<br>accommodate<br>at most<br>sites | native seed<br>mixture<br>native seed<br>mixture  | sod/turf<br>X<br>X |
| 36.                        | -- dump station  | --   | --  | optional           |
| 37.                        | -- provide a mix of shade and sun  | X  | X   | X                  |
| 38.                        | --minimize homesteading  | 14-day limit regulation  |   |                    |
| 39.                        | --accommodate wheelchairs  | modified<br>toilet and<br>pump but no<br>surfacing                   | toilet and pump with hardened<br>access on all sites near<br>toilets; asphalt surfacing |                    |
| 40.                        | --unit design:<br>bubble<br>cleared and leveled<br>surfaced                        | only as<br>needed to<br>protect soil                                 | sand  | sand               |
| 41.                        | --campground host  | X  | X   | X                  |
| 42.                        | --manufactured firering or grill   | X  | X   | X                  |
| 43.                        | --separate group camps from single units   | minimum of 250'  | X   | X                  |
| 44.                        | --maximize use on weekends and weekdays  | --   | X   | X                  |
| 45.                        | --provide boat camping   | provide sites within<br>view of shored boats                         | X   | X                  |
| 46.                        | --minimize views of other camps  | keep units side-by-side<br>and maintain distances<br>between         | 50-75'<br>50'<br>30-50'   |                    |

| ICO's  | Considerations                              | Accommodate                   |           |  | Light Dev. | Mod. Dev. |
|--|---|-------------------------------|-----------|--|------------|-----------|
|  |   | 1                             | 2         | 3  |            |           |
| <b>ACCESS</b>  |   |                               |           |  |            |           |
| 47. -- ice road use/availability   | encourage elsewhere                         | X                             |           | X  |            | X         |
| 48. -- one central access for complex (minimize use<br>(on J-30)             | access control                              | X                             |           | X  |            | X         |
| 49. -- improve deteriorating roads   |   | gravel<br>all                 | mostly    |  |            |           |
| 50. -- provide traffic control   | safety                                      | X                             |           | X  |            | X         |
| 51. -- limit vehicles adj. to shoreline                                      | design roads away from<br>shore             | X                             |           | X  |            | X         |
| 52. -- obliterate roads not used   |   | X                             |           | X  |            | X         |
| 53. -- design to enable gating off (loop) portions                           |   | X                             |           | X  |            | X         |
| 54. -- use predominantly the existing roads i.e.,<br>limit amt. of new roads |   | X                             | primarily | not a constraint yet use<br>where possible |            |           |
| 55. --provide dust free roads  |   | --                            |           | X  |            | X         |
| 56. --barefoot comfort   | walk barefoot from unit/<br>parking to lake | parking and<br>spurs graveled |           | X  |            | X         |
| 57. --minimize vehicular noise   | dependent on surfacing                      | --                            |           | X<br>asphalt quieter                       |            |           |



|                   | ICO's  | Considerations   | Accommodate | Light Dev.                | Mod. Dev.                  |
|-------------------|--|--|-------------|---------------------------|----------------------------|
|                   |  |  | 1           | 2                         | 3                          |
| <b>MANAGEMENT</b> |  |  |             |                           |                            |
| 68.               | -- deter all night parties   | I separate group camps<br>I from single camps  |             |                           |                            |
| 69.               | --damage to trees  |  |             | Regular enforcement of    |                            |
| 70.               | --prevent campers to be left unattended  |  |             | campground rules and      |                            |
| 71.               | --length of season open - deer season open?                                      |  |             | regulations by patrolling |                            |
| 72.               | --prevent soliciting on govt. property   |  |             |                           |                            |
| 73.               | -- limitation on number in site, length of stay                                  |  |             |                           |                            |
| 74.               | -- extend beyond 14-day stay   |  |             |                           |                            |
| 75.               | -- prevent damage to area i.e., peeling bark                                     |  |             |                           |                            |
| 76.               | -- control ATV's   |  |             |                           |                            |
| 77.               | -- fee or free   |  |             | Fees will be charged      |                            |
| 78.               | -- minimize relocation of existing use   |  | X           | X                         | I as much as<br>I possible |
| 79.               | -- quiet zone desirable @ SW corner (Twinsprings)<br>I adjacent to private homes |  | X           | X                         | X                          |
| 80.               | -- fee for group site?   | I 3 X amount of single<br>I units  | X           | X                         | X                          |
| 81.               | -- future expansion of area  | I potential to develop<br>I east and/or north yet<br>I dependent on size of<br>I day use                                 | X           | X                         | X                          |
| 82.               | -- sign as a rec. facility on Co. Rd. 513  |  |             | Standard signing          |                            |
| 83.               | -- names?  | I 'Little Bay de Noc<br>I Recreation Area'   | X           | X                         | X                          |
| 84.               | --acquire Hunters Pt. +<br>I Marz Smith Tract - high Forest priority             | I for expansion possibili-<br>ties, protection of<br>investment and buffer<br>I (acquired Marz Smith<br>I tract Dec. 87) | X           | X                         | X                          |
| 85.               | -- how to build facility   | I combination of equip.<br>I rental contr. and force<br>I acct.  | X           | X                         | X                          |
| 86.               | --protect Maywood Hotel remains  |  | X           | X                         | X                          |
| 87.               | -- Phase in if charging a fee prior to<br>I development                          |  | X           | X                         | X                          |
| 88.               | -- concessionaire operation  | I no plans at this time  | --          | --                        | --                         |

| ICO's   | Design Considerations  | Accommodate | Light Dev. | Mod. Dev.         |
|---|--|-------------|------------|-------------------|
|   |  | 1           | 2          | 3                 |
| <u>MANAGEMENT (continued)</u>                           |  |             |            |                   |
| 89.  -- tie in with local private and public facilities | . Tom Fix<br>  . Perry Verbeck<br>  . RR Township<br>  . Gladstone Mayor<br>  . MDNR |             |            | involve           |
| 90.  --minimize competition with non-FS facilities      |  | X           | X          | Isome competition |
| 91.  --public acceptance (local & non-local)            |  |             |            | involve           |

| ICO's                | Design Considerations  | Accommodate  |  | Light Dev.        | Mod. Dev.   |
|----------------------|--|--|--|-------------------|---|
|                      |  | 1  | 2  |                   | 3   |
| <b>ENVIRONMENTAL</b> |  |  |  |                   |   |
| 92.                  | -- soils have little filtering capacity  | lined/sealed vaults  | X  | X                 | X   |
| 93.                  | -- guard against leakage and any mechanical problems in excavation of toilet vaults<br><br>Note: shallow water characteristics =<br>Croswell (18" - 24")<br>Roscommon (0" - at surface)<br>Ingalls - (18" - 24") | vaults located above potential hi gr. water level, 200' from lake land 100' from stream  | X  | X                 | X   |
| 94.                  | -- reduce trampling of shoreline   | define designated swimming area and remove roads adjacent to shore   | X  | X                 | X   |
| 95.                  | -- fragile soils in that veg. wears off quickly and is difficult to re-establish   | define use area and surface roads and trails   | X  | X                 | X   |
| 96.                  | -- natural spring flooding of small stream through s. part of Maywood area   | No facilities located adjacent to stream   | X  | X                 | X   |
| 97.                  | -- boardwalk provided to cross wet areas   | boardwalk  | small bridge crossing                                  |                   |   |
| 98.                  | -- 100-year flood plain = 582.4' above sea level high risk erosion areas:<br>Sec. 23 - 2'/yr. Maywood<br>Sec. 26 - 1'/yr. Twinsprings  | locate all facilities at least 60' back from floodplain. Locate high capital investment facilities farthest back                     | X  | X                 | X   |
| 99.                  | -- filling of wetlands - adhere to Exec. Order 11990 on protection of wetlands   | fill only if needed  | limit amount of filling especially in Twinsprings area |                   |   |
| 100.                 | -- suitable ground water<br><br>Note: Trenton limestone often yields poor quality  | well depth:<br>drift = 75' - 90'<br>limestone (125'<br>bedrock = 350'(cased)<br>specify type of drilling rig depending on well depth | X  | X                 | X   |
| 101.                 | -- erosion of banks-stairways at Maywood<br><br>-low bluff at Twinsprings<br>-beach  | stabilize & steps<br>natural processes<br>grade  | one set of stairs                                      | X                 | X   |
| 102.                 | -- fill cistern @ Twinsprings. Also remove concrete pipe and fill notes at Twinsprings since the water supply is unsafe  | done previously  | --   | --                | --  |
| 103.                 | -- retain wind protection @ Maywood  |  | X  | X                 | X   |
| 104.                 | -- preserve hemlock stand  |  | X  | X                 | X   |
| 105.                 | --visually blend development with landscape  | facilities/surfacing   | rustic facilities                                      | rustic facilities | facilities may not but blend-gravel& asphalt asphalt blends |
|                      |  |  | I does not blend                                       | I blend           | I   |

| ICO's                            | Design Considerations   | Accommodate   |                        |   | Light Dev.           | Mod. Dev. |
|----------------------------------|---|---|------------------------|---|----------------------|-----------|
|                                  |   | 1   | 2                      | 3 |                      |           |
| <b>ENVIRONMENTAL (continued)</b> |   |   |                        |   |                      |           |
| 106.                             | -- mosquito needed @ low spot (Twinsprings)   |   | fill only as<br>needed |   | manage veg. and fill |           |
| 107.                             | -- improve habitat diversity<br>i.e., permanent openings for wildlife   |   | X                      | X |                      | X         |
| 108.                             | -- underplant oak and white pine (Std. 6) in<br>residual jack pine std. over next 10 years - in<br>case of blowdown or insect and disease |   | X                      | X |                      | X         |
| 109.                             | --favor portions for old growth away from<br>development  | EIS Forest Plan   | X                      | X |                      | X         |
| 110.                             | --protection of coastal zones from over-development   | adhere to S&G's for<br>development in Coastal<br>Zone (Forest Plan) | X                      | X |                      | X         |
| 111.                             | --minimize visual impacts from construction   |   | X                      | X |                      | X         |



**Appendix D****COMPARISON OF ALTERNATIVES**

## Appendix D

**COMPARISON OF ALTERNATIVES - Computation Notes.**

Item numbers reference the Comparison of Alternatives Chart on page 23. Comparisons are based on estimations only and should be used to display relative differences. Actual number of units, costs and benefits will be determined for the design solution, based on site specifics of spatial arrangement and design opportunities.

**The themes for the alternatives:**

Alternative 1: Develop only to protect the site and provide for users health and safety. Minimal change to accomodate traditional use.

Alternative 2: Light development, accepting some changes by adding conveniences. Minimize displacement of traditional use. Protect the site and provide for users health and safety.

Alternative 3: Moderate development, allowing changes to provide more conveniences. Protect the site and provide for users health and safety.

**A & B    Capacity**

The alternatives' capacities or people at one time (PAOT) were based on providing:

-120 PAOT at the day use area for picnicking and swimming; 30-car parking area;

-38 PAOT at the boat launch area; 15-car/trailer parking area;

-Up to 175 PAOT of camping, considering different ratios of group/single camping units to meet anticipated demand and user preferences. (A group unit provides 15 PAOT, and a single unit provides 5 PAOT.). Camping capacity was constrained to 181 PAOT in the alternatives because the primary objective of the recreation development was to provide for camping on Lake Michigan. With limited shoreline suitable for development, increasing camping PAOT beyond this would only remove added units from the Lake, losing the experience of camping on the "Great Lake".

The ratio of group/single camping units for each alternative was based on assumptions relating to anticipated demand and user preferences:

1. Present group users are family members and have indicated a preference for a very low level of "development".
2. Present use is estimated to be 90 group PAOT/85 single PAOT or 6 group units/17 single units. This ratio is reflected in Alternative 1, which accommodates and maintains only existing use; no hike-in or hard-surfaced units are provided.
3. By providing a higher level of development in Alternatives 2 & 3, some displacement may occur due to the higher level of development not meeting present group users' expectations. Providing 3 group units was considered the maximum number of group sites needed, since displacement was anticipated at this higher level of development. Initially, a mix of 6 group units/17 units was considered for Alternatives 2 & 3. This mix was scoped out since it was assumed the higher development level would displace most (50%) of the current family group use. In addition, the expected pattern of use would be concentrated on the weekends, thus dropping RVD use.
4. Displacement of present uses will be replaced by those who prefer a slightly higher level of development.

5. The "replacement" users are assumed to have a higher preference for single units since the majority will not necessarily be related to each other and tend not to camp together in a group unit. Single units would still allow "related" campers to camp next to each other on adjacent single units if they so choose.
6. Double units (10 PAOT), if there is a future demand, could be provided by offering reservations for two adjacent single units. Consequently, no double units will be designed but could be offered administratively in any of the alternatives.
7. The number of hard-surfaced units to accommodate wheelchairs is dependent on the level of development.

The resultant group/single camp unit ratios for the alternatives were as follows. Note Alternative 2 and Alternative 3 display two possible combinations:

Alternative 1: 6 group + 17 single = 23 units (175 PAOT).

Alternative 2: 3 group + 26 single (6 hard-surfaced) + 3 hike-in =  
32 units (181 PAOT),

or

1 group + 32 single (8 hard-surfaced) + 3 hike-in =  
36 units (181 PAOT).

Alternative 3: 3 group (1 hard-surfaced) + 26 single (8 hard-surfaced)  
+ 3 hike-in = 32 units (181 PAOT),

or

1 group + 32 single (10 hard-surfaced) + 3 hike-in =  
36 units (181 PAOT).

C      Development Level<sup>1</sup>

The development levels provided in the alternatives range from a very low level 3 (or high level 2) to a moderately high level 3 on the development scale. A level 3 was not exceeded in order to maintain a "rustic" appearance, one of the public's concerns.

<sup>1</sup>USDA-Forest Service, R9 Guidelines for Publicly Managed Recreation Opportunities, Chapter 3 Full Service/Reduced Service Standards.

The level of development was based on the ICOs and the alternatives' theme. Consequently, the facilities and conveniences provided had to remain consistent with the alternatives' theme.

D Recreation Visitor Days (RVD) Provided

Recreation Visitor Days were calculated using the following equation (from the ROS Users Guide) to convert capacity (PAOT) to RVDs:

$$\text{RVD's} = \frac{\text{PAOT} \times \text{MS} \times \text{PU} \times \text{LOS}}{12}$$

Where:

RVD's = Recreation Visitor Days

In order not to double count day use RVD's, only a percentage of use was estimated. Additional day use (picnic, swimming, and trail use) was calculated using: 30% for Alternative 1, since the area would have a lower level of development and attract only day use from Stonington; 50% for Alternative 2; and 80% for Alternative 3, since use would increase, respectively, based on higher levels of development.

PAOT = People at one time

MS = Managed Season; 120 days for camping  
184 days for boating

PU = Pattern of Use factor; weekday to weekend ratio of anticipated use was estimated as:

Alternative 1 = 1:3 used .5 factor

Alternative 2 = 1:2.5 used .6 factor

Alternative 3 = 1:2 used .65 factor

Pattern of Use reflects total use ratio of weekday/weekend use and is used to estimate RVD based on PAOT or capacity.

Occupancy rates reflect paid use for camping only (Item F)

The boat landing PU stayed at 1:3 for all alternatives. This range of use patterns was used since it was assumed that, as development level increased (i.e., more features/facilities provided), day use would increase. Also, all use would be expected to gradually spread out more evenly throughout the week as development increased and the number of single units provided increased. Further, Alternative 1 has over 50% of its PAOT in group use, and it is assumed that group sites would be primarily used on weekends.

LOS = Lengths of Stay = 24 hours camping  
= 4 hours other uses.

E "Willingness to Pay" Benefits

Total priced benefits or "willingness to pay" was based on Resource Planning Act (RPA) values estimated per RVD. These values were also used in forest planning:

\$4.73/RVD for camping  
\$53.00/RVD for fishing (assuming 50% resident fish/50% anadromous)  
\$8.66/RVD for trail use  
\$4.73/RVD for day use (picnic/swimming).

F. Benefits Generated From Annual Fees

Total fees generated were based on a 120 day season, with a 50% occupancy rate:

# single units x \$6.00 x 120 day season x 50% occupancy rate  
# group units x \$18.00 x 120 day season x 50% occupancy rate  
# hike-in x \$6.00 x 120 day season x 50% occupancy rate.

Camping fees estimated from the R9 Recreation Guidelines, stayed constant for all the alternatives.

<sup>1</sup>NOTE: 1978 RPA values were multiplied by 1.575 to derive 1986 dollar values.

With the assumption that RVD's will increase as the level of development increases (item D), receipts generated from camping fees would also be expected to increase respectively. Fees however, did not increase because the occupancy rate was kept constant.

This assumes that as the level of development increases, user tolerance and/or preference for crowding increases. So the increase in RVD's is the result of more people crowding together onto the same number of units. Thus, RVD's increase without occupancy rates or consequently fees increased.

Based on this assumption Alternative 2 adds .72 people per paid camp unit and Alternative 3 adds 1.3 people per paid camp unit.

Occupancy rates and consequently fees generated were also held constant in order to provide the two extremes of estimated benefits.

"Willingness to Pay" values (item E) are used in the calculation of Present Net Worth considering the intangible benefits (item J). Whereas, Total Fees (item F) are used in the calculation of Present Net Worth considering the tangible receipts. Thereby offering the decision maker both extremes.

#### G Costs of Construction and Annual Maintenance

Costs are provided for relative comparisons only. The top figure represents construction dollars (1986). The bottom figure represents operation and maintenance costs. Operation and maintenance costs were estimated using comparable cost figures from the Forest RIM Facility Condition Report.

H Pay Back Index (PBI)<sup>1</sup>

The Pay Back Index (PBI) is used by the Region as one of eight criteria to prioritize capital investment projects submitted by individual Forests. The PBI displays the return on investment. The index is derived through calculations which consider project development costs, maintenance costs, design life (29 years), RVD's, revenue from fees and nonfee use (.24/RVD) and an annual discount rate or return factor of 4%. This index was chosen to provide a relative comparison of the length of time it would take to pay back the investment for each alternative.

PBI =

$$\frac{\text{Costs (annual depreciation and maintenance/RV} \times 29 \text{ years}}{\text{Net Returns/RVD}} = \# \text{ years to pay back}$$

I & J Present Net Worth (PNW)

Two present Net Worth (PNW) were calculated using different values for benefits while costs remained constant. (MTVEST computer program was used to generate figures based on 4% annual depreciation). Costs included construction, operation, administration, maintenance and replacement/rehabilitation for fee and non fee. Benefits are as shown:

$$\text{Line 10 - PNV} = \frac{\text{Benefits Generated from Annual Fees (item F)}}{\text{Costs (fee and nonfee)}}$$

$$\text{Line 11 - PNV} = \frac{\text{"Willingness to Pay" Benefits (item E)}}{\text{Costs (fee and nonfee)}}$$

<sup>1</sup> USDA-FS Region 9, Guidelines for Publicly Managed Recreation Opportunities (1986)

## Appendix E

### **SELECTION OF EVALUATION FACTORS**

### SELECTION OF EVALUATION FACTORS

On March 18, 1987, a meeting was held to evaluate the alternatives for the proposed recreation development of Little Bay de Noc Recreation Area. The purpose of the meeting was to provide input into the decision-making process of selecting a preferred alternative. The following people participated:

Joel Holtrop - District Ranger  
Dick Elegreet - Asst. Ranger  
Art Easterbrook - Staff Officer (Rec.)  
Bob McHugh - Recreation Staff Assistant  
Ron Hannan - Operations Research Analyst  
Claudia Mielke - Landscape Architect

An overview of the design process and Forest Service Manual direction was presented. Alternatives were then discussed and compared to highlight relative differences. Initial evaluation factors (below) were developed by the participants. Those evaluation factors which displayed the most significant differences, depicted with an asterisk (\*) were selected for use in the Choosing by Advantages (CBA) analysis.

- Minimize costs
- Provide dust-free roads
- Provide for health/safety
- \*Provide for an economically-efficient facility
- \*Provide for a cost-efficient facility
- Minimize maintenance costs
- Consistency with ROS
- Maintain rustic appearance
- Generate revenues

Minimize resource impacts  
Provide for a manageable facility  
**\*Minimize disruption of traditional use**  
Maximize public acceptance of local users  
**\*Maximize public acceptance of local non-users**  
**\*Maximize public acceptance of non-local users**  
Provide blueberry management  
Provide handicap access/facilities  
Minimize noise  
Provide a smooth walking surface (barefoot)  
Minimize use on County Road J-30  
Continue use of ice highway  
Maximize use on weekdays and weekends  
Allow for views of the water from the camp units  
Provide overflow accommodations  
Minimize displacement  
Minimize views of other camp units  
Meet demand  
Provide group day use facilities  
Separate group/single users  
**\*Market area (attract more non-traditional use by increasing number of facilities which will generate more revenues)**  
Minimize distance to toilet facilities  
Provide play facilities  
Minimize liability  
Provide water use safety  
**\*Minimize competition with non-Forest Service facilities**  
Provide a designated swimming area  
Minimize impact on local residences  
Provide for opportunities to expand  
**\*Accommodate group users**  
**\*Accommodate single use**  
Provide access control  
Minimize visual impacts  
Provide a variety of natural resource-based uses  
Provide interpretation  
Provide boat camping